



33, TOTHILL STREET, WESTMINSTER, LONDON, S.W.1.

Telephone : W/Htehall 9233 (12 lines). Telegrams : "Trazette Parl, London"
BRANCH OFFICES

GLASGOW: 87, Union Street Central 4646

NEWCASTLE-ON-TYNE: 21, Mosley Street Newcastle-on-Tyne 22239

MANCHESTER: Century House, St. Peter's Square Central 3101

BIRMINGHAM: 90, Hagley Road, Edgbaston Edgbaston 2466

LEEDS: 70, Albion Street Leeds 27174

BRISTOL: 8, Upper Berkeley Place, Clifton Bristol 21930

Annually £4 10s. by post.

Single copies, Two shillings.

Registered at the G.P.O. as a newspaper. Entered as second-class matter in U.S.A.

Editor : B. W. C. Cooke, Assoc. Inst. T.

Vol. 100]

FRIDAY, APRIL 30, 1954

[No. 18

CONTENTS

	PAGE
Editorial Notes	481
Mr. Cyril Williams	483
One Year under the Transport Act	483
Southern Region Summer Timetables	484
The Indian National Coach Factory	484
Route Indication	485
Nigerian Railway	485
Publications Received	486
The Scrap Heap	487
Overseas Railway Affairs	488
Principles of Railway Organisation	490
Protecting Electric Traction Installations	491
Successful Stabilisation of a Retaining Wall	492
British Railways Class "3" Standard Engine	496
Personal	499
News Articles	502
Notes and News	505

Locomotive Orders

A REMINDER of the special difficulties of British locomotive builders compared with foreign competitors, arising partly from the practice of the home railways in large part to build their own engines and order relatively few from outside builders, has been given by Mr. J. B. Mavor, Chairman of the North British Locomotive Co. Ltd. He points out that 97 per cent of his company's turnover in 1953 was for export, which in present circumstances is an unhealthy position, and he stresses the difficulty of competing with countries such as Germany and Japan unless the locomotive manufacturers can get some support from home buyers when export orders are short. Many railways in foreign countries order from private builders in their own country. It has frequently been pointed out that orders from railways in this country would provide an element of stability, because a steady flow of work would help to spread overhead costs—with consequent benefit to the prices which can be quoted for export products—and retain a skilled labour force that might tend to leave the industry for lighter or otherwise more congenial employment. As the locomotive shops of British Railways are mainly concerned with repair and maintenance, a proportion of the new construction for

British Railways might with advantage be transferred to private builders on a long-term basis. Now, when many matters concerning the nationalised railways are under active consideration by the Government, the time might be opportune to consider whether such a change of policy might be practicable and in the wider national interest. The matter of prices and costs, as between locomotives constructed in railway and private builders' works, would have to be carefully investigated. The Chairman of the British Transport Commission, Sir Brian Robertson, stated last month at the Institution of Locomotive Engineers' annual luncheon that the Commission appreciated the importance of the British locomotive building industry in the export market and would show its appreciation "when it could." Whether this means that any such action is contemplated in the near future is conjectural. In view of the importance of the private locomotive builders in the national economy, there is good ground for investigating any means by which assistance may be given them in markets which are becoming increasingly competitive.

Financing C.I.E. Diesel Purchase

A PUBLIC issue of capital for £4,500,000 will be made this year to finance the approved contract for the purchase of 94 main-line diesel locomotives by Coras Iompair Eireann in pursuance of tenders issued last September. The name of the successful tenderer has not yet been disclosed, but it is announced that the first locomotive will be delivered in about a year's time and delivery thereafter will be at the rate of eight a month. In addition, C.I.E. is to build at Inchicore 50 steam locomotives to burn turf or oil. The full C.I.E. ten-year programme covers an expenditure of £10,000,000 on 105 diesel locomotives. The improved financial situation of C.I.E., which has halved its 1952-53 losses of slightly more than £2,000,000, is stated to be mainly the result of increased diesel working. The undertaking is now committed to an almost complete changeover to diesel transport. The saving in fuel costs has been the most significant economy, but better methods of working and an increase in traffic brought about by using diesel trains have contributed. It is hoped still more to reduce losses in 1954-55, but it is feared that traffic may fall off; also, labour and other costs have risen.

Manila Bonds Purchase

THE Manila Railway Co. (1906) Ltd. has sold to the Philippine Government its holding of refunding bonds in the Manila Railroad Company. The amount involved is U.S. \$13,236,000 and the payment is being made in cash. Reports of the settlement last week caused sharp rises in Manila Railway stocks on the London Stock Exchange, as reported in our April 23 issue, and holders of debentures and preference stock are looking forward to an early payout. No interest has been paid on the £1,840,462 of debentures since 1942. The settlement will cover repayment of both classes of the debentures and the full preference capital. Compensation and other payments will determine the sum available to ordinary stockholders. The Manila Railroad was built and owned by the Manila Railway Co. Ltd., a company registered in London in 1906 and later reorganised as the Manila Railway Co. (1906) Ltd. to hold securities of the Manila Railroad Company of New Jersey. In 1917 the Philippine Government purchased the entire capital stock of the Manila Railroad Company, which was incorporated in the Philippines two years later.

Engineering Exports

A SUBSTANTIAL increase in the volume of engineering exports in the fourth quarter of 1953 appears to have continued into the first quarter of the current year, according to the *Trade & Navigation Accounts* for March. These exports, which averaged £87,000,000 a month, were higher in the past quarter than in any since January-March of 1952. The alteration in the United Kingdom trade classification to a system based on the standard international

trade classification of the United Nations facilitates comparison with other countries. German engineering exports advanced rapidly from 1950 and last year their total value was more than half those of this country; the average monthly value of exports of machinery and transport equipment from Germany more than trebled in 1950-53. Comparison between periods is complicated by the long-term nature of many orders, which applies particularly to heavy industries such as locomotive building.

Railway Rolling Stock

THE new trade classification is in some ways an improvement. Under Division 17 ("railway vehicles") the list of overseas countries to which exports were sent is fairly comprehensive, though various countries are lumped together as "other Commonwealth countries and Irish Republic," when they could surely have been shown separately. The quantity measurement for the division is tons, but locomotive units could have been given as well. Railway vehicles are analysed as steam locomotives, under and over 40 tons, electric locomotives, internal combustion locomotives with mechanical and with electrical transmission, railcars "and other descriptions of rail vehicle, complete," motor coaches, and other railway carriages, wagons and trucks for railways of over 3 ft. and not exceeding 3 ft. gauge—a rough, if useful demarcation between railway and tramway—and rolling stock parts. Having regard to the difficulty of comparison with other periods caused by shipment dates and other factors, it is possible only to record that the total value of railway vehicle exports for January-March this year was £11,816,000 against £9,704,000 for the first quarter of 1953, the corresponding figures for steam locomotives over 40 tons being £2,573,000 (£1,288,000) and for "internal combustion"—presumably mainly diesel—locomotives £4,368,000 (£2,745,000).

Overseas Railway Traffics

ANTOFAGASTA (Chili) & Bolivia Railway receipts rose from £54,834 for the week ended March 19 to £75,030 for that ended April 2, then dropped to £51,319 for the following week, and were £57,926 for the week ended April 16. The incidence of holidays in Chile and Bolivia is one factor which invalidates comparison between the figures for corresponding dates of 1953 and 1954, last year's amounts being considerably higher. Currency receipts were converted to sterling at the rate of bolivianos 538-14 to the £ during the weeks of this year referred to above, whilst the corresponding rate last year was 170-29; the peso conversion rate this year, during these weeks, was pesos 440-60, with one slight variation, and the corresponding rate of 1953 was about 339 to the £. Peruvian Corporation gross receipts for March were soles 10,689,000 and bolivianos 49,342,000, compared with 9,567,000 and 20,206,000 respectively for March, 1953. The Peruvian average remittance rate was soles 54-00, against 43/44 in March, 1953. The Bolivian official remittance rate for restricted amounts was bolivianos 537-08, against 169-61 last year. Remittances to London from Peru and Bolivia for the nine months to March 31 were £651,887, compared with £799,553 for the corresponding nine months of 1952-53.

Steel in 1953

THROUGHOUT 1953 the British steel industry was able to work at an expanding rate, according to the annual report for the year of the British Iron & Steel Federation. Much new plant came into existence with the completion of the first postwar development plan and the launching of the second plan, and adequate raw materials were available. The industry achieved a record steel output of 17,600,000 tons, about 1,500,000 tons higher than the 1952 rate. This made possible the removal of distribution control. With plate production, output rose to nearly 2,500,000

tons, a record for any one year. Exports of plates were reduced so that the home market received a large increase. It is admitted, however, that some difficulties persisted because of the strength of demand. A greater tonnage of materials for the steel industry was carried by British Railways in 1953 than ever before, and with the help of new steel and ore-carrying wagons. On the Transport Act of 1953, the report remarks that though nothing is known of the British Transport Commission proposals for reorganisation of the railways, the Federation considers it would help the industry to preserve the central contacts hitherto enjoyed with the railways on matters such as the design and supply of wagons and distribution of freight rolling stock.

Hundred Years of Service

AT the present time Thomas Allen Limited is celebrating its centenary as a cartage business, founded in the City of London. During the whole of that time it has been the cartage contractor for the Guinness Brewery and for the British & Irish Steam Packet Co. Ltd., two important associations, although since its early days it has embraced work for a great number of major industrial undertakings, including British Railways. Since 1920 Thomas Allen has been bought by Coast Lines Limited and the present Chairman of both companies is Captain A. R. S. Nutting. The Managing Director of Thomas Allen Limited is Mr. B. G. Turner, who has held that position since 1932, nearly ten years after he first joined the board, and under whom much of the great expansion of the company has taken place. It was, for example, the only haulage contractor in the country to become directly to undertake work for the Ministry of Aircraft Production during the recent war, and through one of its subsidiary companies it still maintains a good deal of engineering output. The story of Thomas Allen from its earliest days has been interestingly brought together in a book* which has been published to mark the centenary, and which gives an excellent account of a long period of development and progress.

Stabilising a Retaining Wall

ELSEWHERE in this issue is a description of the measures recently taken to stabilise a retaining wall over 40 ft. in height in the North Eastern Region of British Railways. This wall was built as long ago as 1840, but it seems strange that, unless it is founded on solid rock, it should have been built without footings and with the bottom of its foundations only 1 to 3 ft. below the bed and 6 ft. below the water level of the river which washes its foot at some velocity. The wonder is that it has never previously given trouble during its 114-yr. life. The other threat to its stability was from percolation of surface-water from above into the fill-pocket behind the wall; improved drainage has now been provided to divert the hill-side flow from the pocket. With this precaution taken, and with the new sheet-piling and concrete apron reinforced by heavy buttressing now stabilising the wall, it should be a good many years before further trouble occurs, despite the concentration of so much weight on the piling and 12-ft.-wide foundations behind it.

Centenary of Brazilian Railways

TODAY Brazil celebrates the centenary of its first railway, the ten-mile Maná Railway which was opened on April 30, 1854, in the presence of the Emperor, Dom Pedro II, from Praia da Estrella at the end of Guanaraba Bay, on which stands Rio de Janeiro, to Raiz da Serra at the foot of the Organ Mountains. The line was promoted by Irineu Evangelista de Souza, later Baron Mauá, the moving spirit of early railway development in Brazil, whose name is commemorated by the Leopoldina Railway

* "The First Hundred Years of Thomas Allen (Ltd.)"—58-84, Hermitage Wall, Wapping, London, E.1.

terminus in Rio. In 1872 he received a concession to extend the line up the Serra to the Imperial summer resort of Petropolis, and transferred his interests to the Companhia Estrada de Ferro Principe de Grao Para, which eventually became part of the Leopoldina system. The mountain section, where the line rises some 2,600 ft. in 3½ miles, is worked on the Rigginbach rack system and a heavy traffic is skilfully handled over gradients as steep as 1 in 5½, with a 2-2-2 named *Baroneza*, supplied by W. Fairbairn & Sons, of Manchester, for the Mauá line, began the happy connection between the British locomotive and rolling stock industry and the Brazilian railways which has continued ever since.

British Railways Class "3" Standard Tender Engine

THE first of the British Railways standard class "3" 2-6-0 tender engines has recently been completed at Swindon Works. The locomotives, of which 20 are to be built, have much in common with the standard class "3" 2-6-2T engines, and are of the same tractive effort. In continuation of the policy followed with previous standard designs, they have been designed with the view to maximum route availability on main and secondary lines, as well as the interchangeability of many of the locomotive's components: axleboxes and guides, lubricating and sanding equipment, and so on. The leading pony truck is also of standard design, and the tender, although somewhat smaller, follows the same pattern as used for other British Railways standard tender engines; the cab layout is also similar. These features facilitate both manufacture and repair costs, besides keeping stores balances to a minimum, without impeding repairs. On completion, ten of the new engines will be allocated to the North Eastern and ten to the Scottish Region. The locomotive is illustrated elsewhere in this issue.

Mr. Cyril Williams

IT is difficult to believe that, after today, the familiar figure of Mr. W. Cyril Williams, Sales Director of Beyer Peacock & Co. Ltd., to a certain extent will be withdrawn from the transport scene. Mr. Williams, who is retiring from the executive position of Sales Director after nearly fifty years of service to railways, will remain a Director of the company, and his worldwide and encyclopædic knowledge of railways will still be at the disposal of Beyer Peacock. Mr. Williams has been a pioneer in the promotion of British export trade, particularly with regard to locomotives. He was early an enthusiastic advocate of the advantages to be obtained by the introduction of the Beyer-Garratt articulated locomotive, with the initial tests of which he was associated. He has been outstandingly articulate and successful in the promotion of this form of steam traction in many parts of the world.

Mr. Williams's wide experience and knowledge of overseas railways was freely drawn on by the War Office and the Ministry of Supply during the 1939-45 war, and he actively participated in the work of his company on important armaments programmes and the locomotive production for the campaigns during that period. His railway travels have taken him to all parts of the world, including the whole of the African continent; South America, where he visited Ecuador, Colombia, the Argentine, Chile, and Brazil; Iran; India; Burma; Australia and New Zealand; Russia; Iraq; Turkey, and most countries in Europe. His early journeys in Africa and South America were made by means of every kind of transport over routes subsequently covered by railways. His contributions to the technical press have been many; he has also read a number of papers before the Institution of Locomotive Engineers, of which body he served with distinction as President during the year 1949-50. His many friends at home and overseas will be glad to learn that, as a member of the board of Beyer Peacock & Co. Ltd., Mr. Williams's outstanding knowledge of transport in general, and of railways in particular, will continue to be at the disposal of his company.

One Year Under the Transport Act

THE action taken to implement the provisions affecting the railways during the year that has almost elapsed since the Transport Act became law on May 6, 1953, has necessarily been limited in scope, though progress seems to have been as quick as those who framed the Act could have wished. The reorganisation scheme for British Railways submitted, under the Act, to the Minister of Transport by the British Transport Commission was to provide *inter alia* for the abolition ("if it has not already been abolished") of the Railway Executive. As anticipated by the Act, abolition in fact took place first, at the end of September last, simultaneously with that of all the other Executives of the Commission except the London Transport Executive. This step was effected by the Minister of Transport, Mr. Alan Lennox-Boyd, after consultation with the Commission, in whose view it would help in the discharge of its duties.

Whereas boards of management were set up, on abolition of the Road Haulage, Hotels, and Docks & Inland Waterways Executives, to conduct the management of these undertakings, the central management of British Railways under the temporary organisation to be replaced in due course by that finally approved, is vested in the Commission; the staffs of the Commission and the Railway Executive were very largely fused; two Members of the Railway Executive retired, and one, Mr. J. C. L. Train, was made a Member of the Commission, and the others Chiefs of Services at Commission headquarters. Mr. F. A. Pope, an existing Member of the Commission, and Mr. Train, were charged with certain responsibilities as to railway matters. At the same time the Chief Regional Officers of the six Regions of British Railways were termed Chief Regional Managers and accorded a greater measure of autonomy, with a corresponding diminution of the functional element in the chain of responsibility which had been a much criticised characteristic of organisation under the Railway Executive. This interim organisation suffers from a number of defects, but those concerned have done their best to ensure maximum efficiency during a difficult transitional period. The enhanced status of the Chief Regional Managers probably has been an important factor conducive to efficiency.

Devolution of authority to the railway Regions is in accord with the clauses of the Act dealing with the reorganisation of the railways. The Act requires the Commission to submit to the Minister its plans for the railway reorganisation. This the Commission is understood to have done. What its proposals are and in what form the scheme will emerge after discussion by Parliament is not yet known. The provisions of the Act as to the form of organisation are vague.

Except for the declared intention of the Government to decentralise railway management, there is little indication of what it intends. On the other hand, it is significant that the Chairman of the Commission, Sir Brian Robertson, is reported to have stated last month in Edinburgh that a board would be set up to control the railways in Scotland, for the whole of which country the Act expressly enjoins that an authority for the railways shall be set up. Sir Brian Robertson is stated moreover to have expressed his wish to see this board made responsible for the co-ordination of all the Commission's activities in Scotland. This latter, if it came about, would be a useful measure if it involved return to railway control of docks and canals, hotels and railway catering, with their own road transport restored to the railways on an adequate scale.

In the absence of charges schemes put forward the clauses in the Bill giving greater freedom to the railways in quoting rates and fares have not yet been tested. Nor have the new procedures for obtaining authority for rate and fare increases yet been used. The application for a freight rate increase made early in the year, and that for passenger fare increases in the London area, now under consideration of the Transport Tribunal were made under the existing procedure.

The disposal of the Commission's road haulage assets

seems to be making fairly satisfactory progress, though the prices at first offered by buyers tended to be unreasonably low. It was recently announced by the Commission that the "second round" of bids for some vehicles generally are reasonable. It remains, however, to be seen whether the maximum of 3,500 vehicles which may be retained by the Commission under the Act—one-fifth more than those owned by the railway-owned ancillary undertakings taken over at nationalisation—will suffice to compensate the railways for the loss of the position they would have had in the light of the growth of road traffic since 1948, but for the operation of intervening legislation.

Southern Region Summer Timetables

THE summer train services in the Southern Region, which operate from June 14 to September 19 inclusive, are almost identical with those of 1953. One interesting change concerns the "Devon Belle" all-Pullman train, which, while adhering to its previous times, down on Saturdays and Sundays at 12 noon from Waterloo, and up on Saturdays, Sundays, and Mondays at 12 noon from Ilfracombe, on Fridays in the down direction is to have an entirely new schedule from Waterloo at 4.40 p.m. Instead of the Wilton stop (to change engines only) it will make a passenger stop at Salisbury, running the 83.7 miles from Waterloo in 85 min.; the next stop will be at Axminster, with the 61.1 miles from Salisbury covered in 67 min.; and after that, calling as on the other workings at Sidmouth Junction, it will reach Exeter Central at 7.56 p.m. From Exeter St. Davids to Barnstaple Junction will be run non-stop, and Ilfracombe will be reached at 9.48 p.m. Despite the additional stops, this will be 19 min. quicker than the Saturday and Sunday down timing of 5 hr. 27 min.

The 1.25 a.m. down express from Waterloo to Ilfracombe, Plymouth and Padstow is altered to start at 1.15 a.m., and still reaches Exeter Central at 5 a.m., as before; but from there the Ilfracombe and Bideford section is altered to leave in advance of the Plymouth section, at 5.4 a.m., and all intermediate stops are cut out from Exeter Central to Barnstaple Junction. Ilfracombe thus is reached 52 min. earlier, at 6.50 a.m. This is the first Southern passenger train on record to be booked through the Western Region St. Davids Station at Exeter without stopping. Actually this alteration has been brought into operation in advance of the summer timetable, being introduced by special notice at the beginning of March.

The many weekend through trains during the summer season between the Midlands and the North and the South Coast this year will include one between Sheffield and Hastings. From July 3 to September 11 this will leave Sheffield Victoria at 11.58 midnight, Nottingham Victoria at 1.7 a.m. and Leicester Central at 1.53 a.m., reaching Brighton at 6.4 a.m., Eastbourne at 6.54 a.m., Bexhill at 7.20 a.m. and Hastings at 7.35 a.m. In the reverse direction departure will be from Hastings at 10.20 a.m., Bexhill at 10.36 a.m., and Eastbourne at 10.42 a.m., reaching Leicester at 4 p.m., Nottingham at 4.40 p.m., and Sheffield at 5.54 p.m. Withdrawal at the end of last summer of some passenger services in the Isle of Wight has enabled all trains on the Island to be shown in the one Waterloo-Portsmouth-Isle of Wight table.

Certain changes in the Continental services are of interest. In particular, on the 8 a.m. service from Victoria via Dover-Ostend, the steamer will be accelerated 30 min., arriving at Ostend Quay at 2 p.m., and by a fast connection from there Brussels will be reached at 3.45 p.m., 78 min. earlier than in 1953. The 10 a.m. service from Victoria via Dover/Ostend will connect at Ostend with the new German "Sapphire" diesel-electric train, giving an arrival in Liège at 6.56 p.m., Cologne at 8.27 p.m., and Dortmund at 10.11 p.m. By connection at Cologne with the "Rhein-Main" diesel train, it will be possible to reach Mainz at 10.39 p.m. and Frankfurt at 11.7 p.m. In the reverse direction passengers will leave Frankfurt at 7 a.m., Mainz at 7.27 a.m., Dortmund at 8.4 a.m., Cologne at 9.42 a.m., and Liège at

11.25 a.m. and will reach Ostend at 2 p.m., connecting with the 2.30 p.m. sailing, with arrival in Victoria at 8.50 p.m. The times of 8 hr. 56 min. from London to Liège and 10 hr. 27 min. to Cologne, as also of 9 hr. 25 min. and 11 hr. 8 min. respectively in the opposite direction, are believed to be the fastest ever in force.

The Indian National Coach Factory

THE construction of the Indian Government railway coach building works at Perambur, near Madras, is expected to be completed this year. Tenders were called by the Railway Board in January for the supply of plant and machinery in some 20 groups, and machinery is likely to be obtained early next year. The factory is scheduled to begin production by the middle of the next year and it is planned in the first year to turn out 50 coaches.

The new works is adjacent to the existing broad-gauge locomotive, carriage and wagon shops of the Southern (former Madras & Southern Mahratta) Railway at Perambur. The layout for the factory was prepared and finalised in consultation with the Chief Production Engineer of the Swiss Car & Elevator Manufacturing Corporation, of Schlieren, Zurich, who visited the Indian railways for this purpose in 1951.

A technical aid agreement in respect of the project was entered into with this firm, and draughtsmen of the Carriage & Wagon Design Wing of the Central Standards Office of the Indian railways were sent for six months to the Schlieren works for training in the design of coaches of tubular lightweight welded construction. Twenty technicians also are to go to the works for a period of advanced training in the building of such stock. The coaches which Perambur will turn out will conform to this type, and will be similar to those which have been supplied recently to India by the Swiss Car & Elevator Manufacturing Corporation.

On the basis of single-shift working the full production capacity of the factory, which should be reached by 1957, will be between 300 and 350 broad-gauge coaches a year; this total, it has been stated, will meet all the replacement requirements of the Indian railways and make India independent of imports of coaches. The aim of the Indian Railway Board to become self-sufficient as soon as possible in the supply of coaching stock was apparent from the editorial article in our January 22 issue, when it was reported that Mr. Lal Bahadur Shastri, Minister for Railways & Transport, had announced that almost all new coaches to be acquired would be produced in India.

The cost of the Perambur Works is given as approximately Rs. 4.5 crores; the machinery will cost nearly Rs. 2 crores. The plant, it is claimed, will be the largest of its type in Asia. The coaches will be turned out in semi-finished condition, and it is understood that the individual railways to which they are allocated will be responsible for their furnishing.

Installations already producing passenger rolling stock for the Indian railways include that of the Hindustan Aircraft Limited, at Bangalore, the output of which it is intended to increase from 100 to 180 coaches a year, and those of Braithwaite & Co. (India) Ltd., and the Indian Standard Wagon Co. Ltd., which together can produce up to 250 a year. The workshops of the six railways have an annual capacity of about 500 coaches.

CENTRAL OFFICE FOR EXCEPTIONAL LOADS.—The French National Railways have opened a central office in Paris to deal with applications for the transport of exceptional loads. It replaces the special offices for each Region which have hitherto dealt with enquiries of this kind, and were obliged to consult with one another where loads were to be transported over the lines of more than one Region. The new office is open to the general public and deals with enquiries by telephone or letter for the transport of exceptional loads to any part of France.

Route Indication

ONE of the first problems the railway had to face was how to handle traffic safely at junctions and other locations where there were points and crossings. The driver was expected to be as well acquainted with his route as was his stage coach predecessor, with the necessary skill and judgment to regulate his running accordingly. Where there were alternative routes, however, his path was selected for him by someone else, and to drive correctly he had to know what that was, for it might be the wrong one, obliging him to stop for the mistake to be rectified.

In simple cases, in stations and sidings where speed was low, he had no great difficulty, at least by day, in observing which way the points were set, but at junctions out on the line it was essential to advise him in good time of the situation ahead. Thus the first serious applications of signals, apart from protecting stations and enforcing the time interval, were seen at ordinary junctions, where, too, the first attempts at interlocking came to be made. Saxby's original 1856 patent showed a double line junction. The principle naturally adopted in this and other cases where alternative paths could be followed was to indicate to the driver which one was open and hold him responsible for acting as circumstances dictated.

One reason for the success of the semaphore type signal was its ease of adaptation to this function. Several arms could be placed on one post and allocated each to a distinct route. With the application of interlocking to large stations in the 1860s such signals became very common and posts bearing six, seven, and more arms were sometimes seen. The original junction layout in Saxby's patent, however, had the posts fixed in horizontal geographical order, a logical conception, developed later into the bracket type "splitting" signal so familiar today. Eventually this was insisted on officially for ordinary junctions, but not in stations.

In other countries, also, using varying designs of signal, sometimes in conjunction with point indicators, the principle was followed of signalling the direction to be taken and where, as in France, the ordinary signals were not well adapted to grouping for this purpose, the route was denoted by additional ones of semaphoric pattern. In Central Europe the dislike of having under any circumstances to pass a red light led to peculiar forms of junction signal being designed which, while possessing some advantages, were cumbersome to work. Everywhere, however, the principle was the same, to tell the driver where he was being directed. What speed he should observe was left to him to decide, in his knowledge of the line.

It would take us too far to consider how another conception came to find favour, that of indicating the maximum speed permissible at a junction and not the route set up, though that could often be inferred therefrom. It seems first to have met with extensive support in America. Neither is it necessary to argue for or against either principle. If it is agreed, as it is still by British traffic officers, that the route principle is to be followed, the question is simply how best to carry that out. The bracket type signal is a clear and readily understandable means of conveying route indications, much clearer than the old vertical arrangement of arms, but it takes up space laterally, not everywhere available. Nothing much more distinct could be wished for at a simple running junction, but at the approaches to large stations this system necessitated a considerable spread of signals, and with the addition of lower distant arms and calling-on arms, sometimes even duplicated by co-acting ones below, led at some places to an extraordinary multiplication of semaphores, not to mention the great cost involved.

The only thing that offered to alleviate this situation while British semaphore signalling reigned supreme was the route indicator. Its history was traced in a most comprehensive paper read before the Institution of Railway Signal Engineers on March 17 by Mr. E. Alan Webster, who characterised it as one of the greatest steps forward in signalling from the driver's point of view. It

was no exaggeration to say that "forests of signals" had disappeared in consequence of its introduction. This process has been especially marked of recent years with the spread of colour-light signalling. First suggested in the late 1870s, the route indicator appeared at London Bridge terminus in 1881, normally concealed letters or numbers being displayed in conjunction with certain platform signals. Proving satisfactory, it was installed at several other stations, including some in Belgium, where Saxby did much work. The limited lighting resources then available made this indicator essentially a short range device, but this was not of great importance at the time.

Some years later a design giving a fairly large symbol was produced by J. P. Annett, of the L.S.W.R., from which several others were derived. To exhibit a large indication mechanically involved much heavy mechanism, but pneumatic actuation made the Annett and similar arrangements easier to instal. Another indicator, operated by an electromagnet was introduced some 40 years ago and is still being applied. The principle, however, of all these devices was the same; it was in the selecting and moving of the symbols themselves that variations occurred. With electric power more readily available their lighting could be improved, but this itself offered a means of getting rid of all moving parts except controlling relays and forming symbols of lamps only, as in the next item indicator already well known in theatres, while obtaining at the same time improved visibility. This arrangement is now much employed, with varying forms of controlling and proving, about which opinions differ, and to the features of which Mr. Webster referred. Electrically driven roller blind mechanisms, on the principle of vehicle destination indicators, also were introduced, and illuminated stencil devices, these latter being effective for certain situations.

The characteristics of all these arrangements were outlined in the paper, which discussed how route indicating should be applied and showed how a variety of considerations entered into what might be thought by some to be a simple problem. Finally, it dealt with the modern junction indicator. This is not a route indicator, in the original sense of the term, but an actual substitute for splitting signals at running junctions not requiring a symbol to be read by the driver. Simple in itself it too has taken slightly different forms, upon the advantages of which all are not agreed. Indeed, it was with justification that the President, Mr. T. Austin, closing the discussion, remarked that there appeared to be as many views on route indicators as there were designs in service. As long, however, as our present methods of controlling traffic apply in this country these indicators will retain their importance and Mr. Webster's suggestions for regularising certain items of practice with regard to them seem to call for consideration.

Nigerian Railway

A SUCCESSFUL year's working which in almost every way produced record results is described in the report of the Nigerian Railway for the year ended March 31, 1953. This report was the last to be submitted by Mr. D. C. Woodward before retirement after six years as General Manager. The total tonnage hauled exceeded 2,000,000 for the first time, the previous highest being 1,841,000, in 1948-49, and at the same time the total revenue passed the £10,000,000 mark and resulted in a surplus balance of over £2,000,000.

The principal results are given below:—

	1951-52	1952-53
	(thousands)	
Passenger journeys	5,546	5,516
Tonnage hauled	1,338	1,543
Passenger train-miles	1,165	1,229
Goods train-miles	3,676	4,021
	(£ thousands)	
Passenger, parcels and mails receipts	1,318	1,470
Goods and livestock receipts	6,185	8,552
Road transport receipts	58	62
Total operating receipts	7,817	10,512
Operating expenditure	4,862	6,057
Operating surplus	2,955	4,455
Renewals contributions	1,250	1,500
Interest on capital	840	841
Net surplus	495	2,176

The operating receipts were an advance of 34 per cent

over the previous year, which was itself a record, and this advance was made up of 21 per cent derived from increased effort and 13 per cent from the increases in rates and fares which were introduced in 1951-52, but did not have their full effect until 1952-53. Limitations of locomotive power made it impossible to increase freight train miles as much as the demands for transport required, but more efficient loading enabled the movement of goods traffic, expressed in net ton-miles, to be increased by 25 per cent. The largest single factor in the demand for transport was the volume of foodstuffs and other goods for consumption within the country. This has increased in 13 years from a volume of 150,000 to 518,000 tons. The tonnage of groundnuts, which remain the largest single commodity, was the second highest in any one year, and amounted to 338,000. Passenger journeys have fallen slightly but generally the passenger statistics show little change from the previous year.

On the operating side, with only seven new main-line locomotives added to the fleet, an additional 334,000 tons (paying and non-paying) has been moved, and net ton-miles rose from 663,000,000 to 827,000,000. Vehicle miles decreased from 65,000,000 to 62,000,000. There was a net loss of tractive effort amounting to 250,000 lb. because of withdrawal from service of 16 locomotives which had reached the end of their useful life and the destruction of a further locomotive in an accident.

The number of engine failures dropped to 471, representing a 25 per cent improvement on the previous year, but it is considered that there is still appreciable room for improvement. Two second-class and four first-and-second class sleeping cars were placed in service during the year, as were a further 149 converted wagons. These comprised 40 low-sided and 109 high-sided converted from American lease-lend wagons.

There was unrest among miners in August and October, 1952, and it was decided to import coal from South Africa and the United Kingdom so as to build up reserves. Thirty-six new five-ton road vehicles were received and 25 placed in service before the end of the year.

Fair progress was made with the heavy capital works programme. At Jos the new passenger platforms have been brought into use and the permanent way has been remodelled. Work at Ibadan, where the permanent way is being remodelled, and on the new running shed at Ebute Metta Junction, made good progress.

The tonnage of traffic at the ports of Apapa and Port Harcourt increased by 5½ per cent and 53 per cent respectively, and mechanical horses and trailers have been introduced at both ports. Clearance by road has been encouraged in order to decrease the quantity of local traffic by rail. The extension of Apapa Wharf has made satisfactory progress.

Publications Received

Report of the B.I.M. Annual Conference, Harrogate, 1953. London: British Institute of Management, 8, Hill Street, W.1. 9 in. × 5½ in. 207 pp. Price 7s. 6d.—This book gives in compact form the substance of papers read at the 1953 conference of the Institute and also notes of the debates and discussions. Most of the book is capable of general application to railway problems, but the contributions on communications in a large-scale undertaking and on the formulation of a company transport policy are of particular interest.

L'Année Ferroviaire, 1954 (The Railway Year, 1954). Paris 6e, Librairie Plon, 8 Rue Garancière. 9 in. × 5½ in. 223 pp. Maps, diagrams, and folding plate. No price stated.—Every year the French National Railways present a review of their activities in which technical and economic information not readily found elsewhere accompanies articles depicting aspects of railway work in a style attractive to the general reader. In this edition, Monsieur Louis Armand, General Manager of the S.N.C.F., discusses railway economics in the light of the conception of a united Europe; and Monsieur P. Marois, Commercial Manager, writes on the development of goods services and facilities in the face of competition. Technical contributions by other authors deal with diesel traction in France and abroad and with the results achieved during a full year of electric working on the Paris-Lyons main line, one satisfactory feature of this undertaking being definite evidence that new traffic which might have gone by road or air has been attracted to the railway. An article by Monsieur Pierre Devaux analyses the application to railway signalling of the principles which in other departments of activity have

created the calculating machine and the "electronic brain." The general and statistical information sections in the second part of the book have been revised. In the chapter on electric traction five pages are devoted to the "Etoile d' Ambérieu" electrification, of which the first stage, between Lyons and Culoz, was completed last autumn.

Parade of Power.—The Public Relations & Betterment Board of the Victorian Railways has issued a 20-page booklet, "Parade of Power," containing illustrations and principal details of representative steam, electric and diesel-electric locomotives. Most Victorian Railways locomotives are general-purpose types, but an exception is the "S" class Pacifics built in 1928-30 and streamlined in 1937 to haul the "Spirit of Progress." British manufacturers are well represented in the locomotives featured, including Beyer Peacock & Co. Ltd., the North British Locomotive Co. Ltd., the English Electric Co. Ltd., and Walker Bros. (Wigan) Ltd. The booklet is priced at 6d.

British Standard for Dimensions of Three-Phase Electric Motors.—The British Standards Institution recently issued a standard dealing with the dimensions of fractional horse-power motors (B.S. 2048: 1953). To fulfil further the need for dimensional standardisation of electric motors in the United Kingdom, a second standard (B.S. 2083: 1954) has now been issued. It establishes nine frame sizes for squirrel-cage, totally enclosed, fan-cooled, foot-mounted motors intended for industrial purposes and having a maximum continuous rating and is applicable to 50-cycle motors at voltages not greater than 650 V. and covers motors of 1-20 h.p. at 1,500 r.p.m., synchronous speed. With the exception of the 1 h.p. four-pole motor, the dimensions specified are similar to those given

in the American NEMA Standard MG 1-1949, but for a given frame size the h.p. outputs have been increased to fall into line with practice in this country, and shaft dimensions have been enlarged accordingly. Copies can be obtained from the British Standards Institution, 2, Park Street, London, W.1, price 2s. 6d.

Power-Samas Magazine.—The first of a new issue of the Power-Samas Magazine has recently been published. The magazine, which is issued by Powers-Samas Accounting Machines (Sales) Limited, has been redesigned to give it a more topical appeal. The contents include various contributions relating to the firm's system, with many illustrations depicting its various aspects.

Self-Adjusting Arc Welding of Aluminium.—The Research Laboratories of the British Aluminium Co., Ltd., have completed the first part of their study of the self-adjusting arc welding process using the manual Aircomatic equipment, and the practical aspects of this subject, together with the information obtained on operating conditions and performance are given in their most recent publication, "Practical Aspects of the Self-Adjusting Arc Welding of Aluminium." The equipment, produced and marketed in this country by the British Oxygen Co., Ltd., under the trade name of Argonaut, uses the principle of an inert gas-shielded, metal-arc, operating under self-adjusting conditions, in which the welding heat is supplied by a direct-current arc with the electrode positive. An important feature of the process is the use of high current densities in the electrode; the minimum value being in the region of 50,000 amps/sq. in., when the inert gas is argon. The arc is called self-adjusting, because the rate of consumption of the electrode varies with arc current and voltage.

THE SCRAP HEAP

Refreshment Stop

An express came to a jolting stop near Lissone, in Northern Italy, just a few feet from a figure lying across the track. Members of the train crew shook the man violently. He woke up and darted into woods nearby, leaving an empty wine bottle behind.—*From the "Irish Times."*

The Brighton Line

The Brighton Railway is our especial favourite. The transport is rapid, and the contrast striking; you are not obliged to wander to out-of-the-way parts of London to get to the terminus [London Bridge]; and, above all, the scenery upon the line is unusually diversified and champagne—if we may use the term.

Who for one instant would compare the trouble and extortion of the old coachyard to the comfort of the station? We are snugly under cover, and have leisure to look about us, and make out our own histories of the people around. Carriages are revolving on the turnabouts, to be added to the train; luggage-barrows are rumbling down the platform, and the porters are burying themselves in the lockers, head first, like bees in bell-flowers.—*From "The Illustrated London News" of December 7, 1844, quoted by the "British Railways Magazine, Southern Region."*

Tilbury Line Centenary

For the centenary earlier this month of the opening from Forest Gate to Tilbury of what became later the London, Tilbury & Southend Railway, the borough engineer of Barking, the Stephenson Locomotive Society, and other railway enthusiasts staged a small exhibition of photographs, models, and timetables at the Barking Town Hall.

The borough engineer emphasises that this line was always proud of its punctuality and also of its smart rolling stock. The line to Tilbury was planned

to carry London's trippers, who found Rosherville Gardens to be a great attraction in the middle of the nineteenth century.

These gardens, a sort of Vauxhall, were at Gravesend, and a ferry service handled the new railway traffic arriving at Tilbury. The extensive building of Southend which took place a few years later made the success of this small line a certainty.—*From "The Manchester Guardian."*

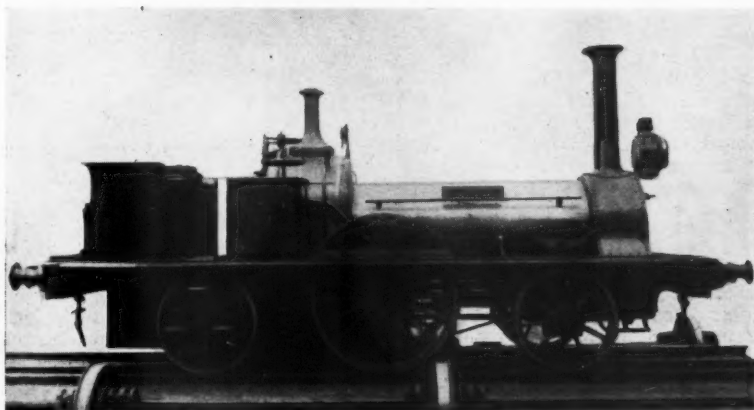
Coin-Operated Barrow Service

Put a coin (25 cents—1s. 9½d.) in a slot and you unlock a luggage cart from a rack in U.S.A. railway stations. Then you can handle your own bags and do red-capped porters out of tips. If you have time before the train leaves to put the cart back in the rack the slot machine will return 10 cents—8½d.—*From the "Daily Express."*

Dominating Devon

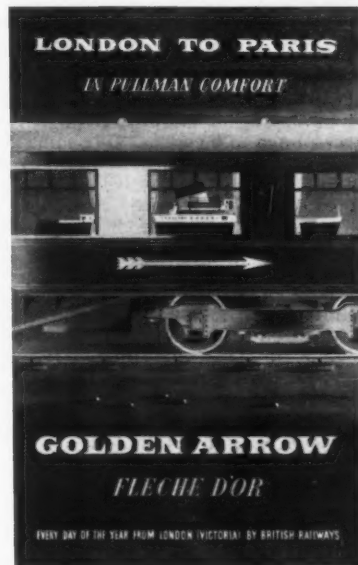
The Great Western Railway dominated Devon, and indeed the whole of the West of England, and what a splendid railway it was. It was as solidly built, as spaciouly efficient, as safe to use, as unimpeachable, as the Bank of England. Men were proud of working for it, and served travellers with the courtesy and pride of those who knew their jobs and their high reputation. And those who used the railway felt in turn almost a personal affection for it, its complete dependability and its foibles . . . The whistles and the hooters blew interminably at St. David's Station in Exeter on that December midnight [December 31, 1947] to welcome the birth of British Railways; but I fancy that they would blow with even greater fervour today if the old Great Western were coming back to the men who understood it and were proud of it.—*From "Devon," by W. G. Hoskins.*

Brazilian Centenarian



"Baroneza", the first locomotive in Brazil, supplied in 1854 by W. Fairbairn & Sons of Manchester (see editorial comment on page 482)

Pullman to Paris



A new Southern Region poster showing the contrasting livery of British and Continental Pullmans in the "Golden Arrow" service

. . . and Lost Awhile

(A recent British Railways lost property sale included nine manhole covers)

The papers tell a pretty tale
Of things that turned up in a sale,
Of odds and ends left on the line,
Including "manhole covers (nine)."

True, with Amnesia's artful air,
Some curious things can be mislaid,
Through innocent inconsequence
Or absent-minded negligence.

Man rushes madly here and there,
Scattering possessions everywhere,
But I, for one, begin to find
Evidence of some master mind.

All very well for us to state
That objects are inanimate.
What if they have some deep-laid plan
To harass and embarrass man?

Take gamps. Those sceptres of the
world
Of business never get unfurled;
What if, frustrated, they hit back
By getting left upon the rack?

Pursuing fancy's imagery,
Why the antipathy to me,
Shown, as and when the spirit moves,
Invariably by left-hand gloves?

But, banish eccentricity
Of thought awhile and mourn with me,
For somewhere like disconsolate lovers,
Nine manholes languish for their covers.

A. B.

OVERSEAS RAILWAY AFFAIRS

(From our correspondents)

INDIA

Increasing capacity of Assam Link

The freight capacity of the Assam Link line of the North Eastern Railway is reported to be increased to some 200-250 wagons a day against the previous 150-175. The line is stated to be meeting all the demands of consigners of tea, jute, and other produce of Assam.

In view of the improvements during the war to the metre-gauge lines in the Assam Valley on both banks of the Brahmaputra and to the Pandu-Amingaon wagon ferry, the Assam Link, built after Partition to avoid transit through Pakistan territory, appears to be the section with the lowest capacity for traffic between Assam and other parts of the Republic of India.

SOUTH AFRICA

Woollen Waste Reclamation

By improvement of the methods of reclaiming woollen waste, oil and grease, £540,338 was saved last year in foreign exchange. In 1939 woollen waste was bought at 9d. a lb. Last year the cost was 6s. 4d. a lb.; but it was fortunately possible to reclaim 1,046,670 lb. at a total cost of £7,804, or less than 4d. a lb., saving the Administration £496,920. The saving on new oil amounted to £43,418 and there was a saving also on locomotive grease.

Barrier System at Reef Stations

Since the introduction of the barrier system at 20 Reef stations, the sale of train tickets to non-Europeans has expanded steadily.

The net increase in suburban passenger revenue since the introduction of barriers averages a little over £22,000 a month after making allowances for the wages of 208 non-European barrier attendants and for interest on the capital expenditure involved. Fifty-three European ticket-examiners have been withdrawn and are being employed elsewhere.

Barrier working was introduced at some stations on June 15, 1953, and was extended to three additional stations on August 28. During the six months which ended September 30, 1953, and during part of which barrier working was in operation, 59,050,513 passenger journeys were made on the Rand suburban system. The total for the corresponding period of 1952 was 55,055,222. The increase of more than 4,000,000 journeys can be ascribed partly to the fact that free travelling on suburban trains has been greatly reduced as the result of barrier working.

Chrome and Manganese Traffic

The final analysis of manganese and chrome ore moved by rail from the mines during the 1953 calendar year shows that despatches of manganese for

export amounted to 654,932 tons in comparison with 666,858 tons during 1952. The total quantity sent by rail for export during the financial year 1952-53 amounted to 742,744 tons, 111,519 tons more than during 1951-52 when the railway go-slow strike hit railway traffic. Chrome ore moved during 1953 amounted to 592,143 tons compared with 468,555 in 1952.

BELGIAN CONGO

New Sleeping Cars

Four sleeping cars have been supplied by S.A. des Ateliers de Construction de et à Familleureux, Belgium, to the Compagnie des Chemins de Fer du Congo Supérieurs aux Grands Lacs Africains. They are 19.9 m. long, 2.9 m. wide and 4 m. high from top of rail to the upper part of the roof and are for the 3 ft. 6 in. gauge.

There is accommodation for 24 passengers and the vehicles are divided into two first and two second class compartments, each consisting of six berths. The compartments provide the maximum of space and comfort; they include wash stand, cupboard, luggage rack and recess, water closet, wash basin and shower-bath.

At a small bar in the centre of the coach, between the first and second class compartments, light meals and refreshments are served. Lighting is fluorescent. The air-conditioning installation enables a temperature of 25 deg. C. to be maintained throughout the coach.

UNITED STATES

Norfolk & Southern All-Diesel

At the end of January the Norfolk & Southern Railway, a 733-mile railway

connecting Norfolk, Virginia, with Charlotte, North Carolina, by a main line 383 miles long, and with a number of branches, became an all-diesel system. When the first diesels were introduced, the line had 48 steam locomotives; today a heavier traffic is being handled with 31 diesel units than was worked with 62 steam locomotives in the earlier years of the railway's history. Freight traffic only is carried.

Central of Georgia Railway

Hitherto the Central of Georgia Railway, a system of 1,816 miles connecting Chattanooga, Birmingham, Montgomery, and Columbus in the west with Macon, Albany, and Savannah on the Atlantic Coast, has been a subsidiary of the Illinois Central System, though independently operated. Recently an offer of sufficient Central of Georgia stock to assure control was made to the St. Louis-San Francisco Railway, and if accepted would have given that railway direct access from St. Louis, Kansas City, Oklahoma City, and Tulsa to the Atlantic, via Birmingham, as well as its present outlet to the Gulf of Mexico at Mobile and Pensacola. The St. Louis-San Francisco has decided not to take any action for the present.

HUNGARY

New Express Locomotive

A new 4-6-4 express locomotive has been constructed by the Mavag works for the State Railways. The design has taken into consideration specific Hungarian needs—low axle-weights in view of the flat nature of the country and a maximum speed of 75 m.p.h. because of short distances between stations. As Hungary has plentiful supplies of brown



Photo courtesy]

[N. Stewart

New 4-6-4 locomotive of the Hungarian State Railways built at Mavag works about to leave on a test run

coal, the automatic firing equipment has been adapted for brown coal stoking.

The locomotive, equipped with four cylinders, can haul a 500-ton express at a speed of almost 70 m.p.h. on level track. The five-axle tender weighs 37 tons empty and has a capacity of 5,500 gal. of water and 13 tons of coal. The locomotive is fitted with a Heusinger-Walschaerts valve gear.

There are a Knorr-type rapid action brake and a straight air brake. The first acts on each wheel; the straight air brake engages only on the driving wheels, the trailing bogie and the tender. The cab is entirely closed, and has large windows giving a good view front and rear.

BELGIUM

"Radio-Train" Excursion to Holland

On Easter Monday the S.N.C.B. ran an excursion to Leiden and Amsterdam by a "radio train" with snack bar. The train left Brussels-Midi at 8 a.m. and reached Leiden at 11.55. Luncheon at Leiden was followed by a coach tour of the bulb fields and to Amsterdam, where time was allowed for a tour of the canals by launch. The return from Amsterdam was at 5.51 p.m. and Brussels-Midi was reached at 10.46.

FRANCE

Multi-Purpose Flat Wagon

In collaboration with the S.N.C.F., of which it is a subsidiary company, and the Société Nouvelle des Ateliers, the New Container Company (Compagnie Nouvelle de Cadres) has designed and had constructed a new type of flat wagon which can be used for the conveyance of containers, road-vehicle trailers, lorries or other motor vehicles. The

wagon has an overall length of 14.38 m. (47 ft. 2½ in.) and a length inside end-boards of 13.20 m. (43 ft. 3½ in.). The tare weight is approximately 12 tonnes and the maximum permitted load about 28 tonnes.

The wagon is noteworthy in that it has been constructed, with a view to operating internationally, inside the limits set by the British structure gauge, and with an underframe which permits the exchange of axles at the French-Spanish frontier, thus making possible through running in the Iberian peninsula.

Travel Agents

The S.N.C.F. holds annually in Paris a conference of travel agents with the object of instructing them personally regarding new and faster train schedules and other items likely to help them in "selling" transport.

The 1953 meeting took place early in December under the chairmanship of Monsieur Marois, Chief of the S.N.C.F. Commercial Department. On this occasion it was not limited to travel agents in France, and included representatives from countries as far afield as Egypt, Finland, Greece, Israel and Scandinavia. The meeting was terminated with an address by Monsieur Tissier, Chairman of the S.N.C.F. Board of Administration.

Packaging Exhibition

The S.N.C.F. was represented at the seventh packaging exhibition in Paris. The principal feature of the exhibition, and of the third handling equipment exhibition held at the same time, was the lightness of the materials used for the construction of packages, containers and pallets.

The S.N.C.F. has been prominent for many years in educating traders in the

advantages of good packaging standards, and this was the theme of its stand. Reference was made to the intention of the S.N.C.F. to open in 1954 a new general packaging laboratory at Auteuil-Boulogne equipped with the most modern and powerful apparatus; this will be additional to the laboratory already in existence, to which we referred in our October 10, 1952, issue.

Library Facilities

Each Region of the S.N.C.F. provides lending library facilities for its active and retired staff and their families. There is in each Region a central library headquarters responsible for stocking the branch libraries situated at strategic centres throughout the Region. The Western Region central library headquarters is at Paris St. Lazare and there are 63 branches. The branch at Cour de Rome in Paris holds some 14,000 volumes, and caters for approximately 8,000 borrowers of all ages.

IRELAND

Diesel Driving Trailers on G.N.R.

The Great Northern Railway, which for some years has operated diesel trains of three or four coaches, made up of two railcars with one or two intermediate coaches, has now turned its attention to the two-coach diesel train for light suburban or branch service. Successful trials have been completed with a new combination consisting of one railcar and one driving trailer.

So far two of the driving trailers have been built. They have a centre-corridor and seat 72; there is a driving compartment at one end. When not in use in diesel trains, they can run in steam trains.

Scenes on Spanish State Railways



Photos]

(Left) Train hauled by 4-8-2 locomotive at Madrid Atocha, terminus of the former Madrid Zaragoza & Alicante Railway; (right) Moorish architecture at Plaza de Armas (Cordoba) Station, Seville



[A. Earle Edwards

*Sixteenth International Railway Congress***Principles of Railway Organisation***Effects of State control on administration ;
simplification of managerial functions*

REPLIES from many European countries and associated territories to questions on their organisational methods have been summarised by M. Dugas, Directeur des Etudes Générales of the French National Railways, in a report on Question 8 for consideration next month by the International Railway Congress in London. A previous report based on the replies of other railways, summarised by Mr. Bengt Adamson, Superintendent, Swedish State Railways, appeared in our issue of March 26.

M. Dugas points out that the principles of organisation differ from country to country and are the result not only of the nature and size of the undertakings, but also of such factors as legislation, the nature of the traffic involved, the attitude of the staff, and also of historical and political events in the country concerned.

Railway administrations fall into three categories according to legal status. The first group, the State railways, may be subdivided into those which consist of a State administration, such as these in Algeria and the Federal German Republic, and those whose higher management is the responsibility of a ministerial department, as in Italy, or, as in Austria, a senior civil servant answerable to a ministerial department. Also in this category are public undertakings with administrative independence, such as are found in Spain, Greece, Switzerland, Syria, and the Belgian Congo.

The second group consists of companies which are partly owned by the State, of which the Belgian and French National railways are examples. The greater part of the capital of these railways is held by the State.

The final group consists of limited or private companies. In some of these the state holds part of the capital, as in Holland, Portugal, and Morocco, and in the case of the Bernese Oberland and Rhaetian railways in Switzerland. In others, such as the North Milan railway and the Sfax-Gafsa Railway in Tunisia, the State retains only a right of control. These are true private companies.

State Railways Managements

In general, State railways are managed at the highest levels by an administrative board or managing committee, or sometimes by both. The chairman of the board may have special responsibilities in other directions. In Italy, for instance, the chairman is the Minister of Transport, but the function of the board is consultative only, although there are many matters upon which it must be consulted. Managing commit-

tees appear to be very varied in their constitution and powers and may even replace the General Manager who is to be found on most systems. The General Manager is often a member of the administrative board and usually has the advice of some form of consultative committee. At one or other of these levels there is frequently some form of staff representation.

The general management of the Austrian Federal Railways forms a part of the Federal Ministry of Transport & Nationalised Enterprises. The General Manager is a high official of the Ministry and he is not responsible to any administrative board, nor does the general management include a consultative committee.

State Railway Boards

State railways having administrations distinct from the State are usually administered by a board on which serve representatives of various State departments and sometimes representatives of transport users, financial experts, staff representatives, legal experts, and so on. There is frequently a Government right to nominate members or to choose a member from a panel of names put forward by an interested party. Powers are sometimes delegated to an executive body.

Railways partially owned by the State form a small group in which the degree of State control is dependent on the financial interest held. The French National Railways, in which the State holds 51 per cent of the shares, is an example. A board of 20 administers the undertaking, and 10 of the members are appointed from officials serving in State administrations. Of the remainder five are appointed by the boards of the former railway companies, which retain 49 per cent of the shares, and the remaining five by staff interests. The chairman is a member of the group of officials and thus, in the event of an even division of votes, the chairman, representing the State, has the casting vote.

Limited Companies

Limited companies are subject to State intervention in a greater or lesser degree. In Holland, for instance, the State is the only shareholder, and in other cases it has representatives on the board or holds a watching brief. Even the private companies may not be absolutely free.

The majority of the railways concerned are directed by a General Manager, often with the assistance of deputies, and a General Secretary, but a limited number of organisations have a managing committee carrying out the

functions of a general manager. This is the case with the German Federal Railway, the Netherlands Railways, and the Swiss Federal railways. Assistance is given to the general management in most systems of importance by bodies or departments which with the general management form a central supervising body. The heads of these departments may have certain powers delegated to them, but they work under the co-ordination of the general management.

Management at Intermediate Levels

Between the central body and the actual working units there are usually a number of intermediate bodies in charge of zones or regions, or, in smaller undertakings, districts. The manager of such a subdivision is usually answerable to the general manager but not to central departmental heads. The specialised sections of the administrations at local levels, such as engineering departments, are usually subject to the control of the regional manager, but in a number of cases they are responsible direct to the central management.

Geographical Organisation

Most of the railways concerned are divided into geographical areas, but the size and shape of these often owes as much to historical and political factors as to geography.

In some countries, such as Spain and France, a radial division of areas has been followed as far as possible. In France, however, the Mediterranean Region was formed in 1947 with the object of effecting geographical decentralisation. The report states that this step has led to increased general expenditure by the S.N.C.F.

Simplification

Among the steps proposed by various railways to simplify their organisation and reduce administrative staff are the centralisation of departments to increase efficiency, amalgamation or regrouping of offices, revision of geographical areas, elimination of intermediate supervisory bodies, elimination or introduction of certain specialised bodies, devolution of authority, and general simplification of administrative duties.

Measures listed by the Belgian National railways include the publication of a booklet aimed at instructing technical staff who are undertaking administrative duties for the first time. The Spanish National Railways have decided to plan for and gradually effect a 10 per cent reduction in staff and also to set up an economic control organisation which will report directly to the management and extend its activities throughout the whole system.

*Sixteenth International Railway Congress***Protecting Electric Traction Installations***Improvement required in detection of overloads*

THE report by Mr. T. S. Pick, Chief Electrical Engineer, London, Transport Executive, on Question 11 before the International Railway Congress reviews detailed information on practice in protective equipment received from railways in the United Kingdom, New Zealand, South Africa, India, the United States, Denmark, and Sweden.

All administrations operating a high-tension distribution system earth the neutral point of the system either direct or through a resistance. It is usual practice for the resistance to be capable of carrying the maximum fault current for 30 sec. Liquid resistances are used by the London Transport Executive, and on the Liverpool Street-Shenfield section of British Railways. H.T. bus-bar protection is comparatively rare, but there is earth leakage apparatus at 30 Southern Region substations; bus zone protection at four substations on the Eastern Region; frame leakage protection at the point of intake at Bank Hall (L.M.R.), and four experimental installations on London Transport.

On radial feeders, overload and earth leakage relays with inverse and definite minimum time characteristics are installed on nearly all railway H.T. systems, although balanced feeder protection is also used in a number of cases. Where there are ring mains, or substations energised by feeders interconnecting two parallel sources of supply, a differential system is installed, and back-up protection by overload and earth leakage relays is provided at each end of the ring or each source of supply.

Rectifier Installations

All administrations use d.c. circuit breakers to disconnect overloads arising on any single track. Arrangements are also made to disconnect rectifiers and transformers from the a.c. supply when a sustained overload occurs from a cause such as a combination of loading increases which individually are insufficient to bring out the track breakers.

British Railways (Eastern Region), London Transport, the South African Railways, and the Southern Region use instantaneous overcurrent relays on direct-acting overload trips to open the a.c. circuit breakers as rapidly as possible in case of a short-circuit. With glass bulb or pumpless air-cooled rectifiers, several railways eliminate the instantaneous a.c. relay in favour of H.R.C. fuses in each anode circuit. The Southern Region describes three installations where blowing of an anode fuse trips out the a.c. breaker to prevent overloading of the remaining anodes.

Anode current relays operated from current transformers in the anode leads, or in the primary winding connection of the main transformer, are used by the

South African Railways for initiating arc-suppression in case of backfire. Arc-suppression apparatus operated by instantaneous overcurrent relays has been installed on a number of modern equipments to interrupt the current with extreme rapidity without operating the a.c. circuit-breaker. The system is in use on the Western Railway of India, the South African Railways, Danish State Railways, and at 13 Southern Region substations.

Six administrations use protective gear to safeguard transformers against overheating. Buchholz relays are installed in many cases for protection against oil-level drop. Their provision is also being considered by New Zealand, and British Railways state that it is their policy to install this additional protection on future equipments.

Thermostats are used to protect water-cooled rectifiers by shutting down in the event of overheating, but on the Danish State Railways operation of the thermostat also brings another unit into operation. Protection against excitation failure is provided by only four administrations. On the Central Railway (India) a timing relay allows the ignition apparatus to operate, and causes the H.T. circuit-breaker to function only if ignition fails. The Southern Region prefers giving warning of excitation failure to the supervisory staff, without shutting down the rectifier.

Feeders and Contact Lines

Running rails are used normally as the return conductor, although two fourth-rail systems are noted. The Swedish State Railways, in order to eliminate inductive interference with telecommunications, provide an overhead return line connected to the running rails at intervals of $\frac{1}{2}$ of a mile. It is not common practice to earth the return conductor permanently, but sometimes a neon tube provides emergency earthing in the event of a positive short to earth. On the Southern Railway of India the overhead line is at negative potential, while the running rails form the positive conductor and are earthed through a resistance at each substation.

Opinions expressed in detail by most of the railways replying show that parallel operation of substations is preferred and that the advantages of this system heavily outweigh the drawbacks. Most railways use high-speed magnetically-held circuit-breakers for feeder and contact-line protection, with discrimination between overloads and short-circuits by a "rate of rise" characteristic which gives lower tripping values for high rates of rise of current. London Transport is the only administration replying to the questionnaire which installs devices for indicating the temperature of feeders.

Automatic reclosure of circuit-breakers is reported by four administrations, while nine use remote operation from control rooms. The prescribed intervals before again attempting to close a breaker after three successive trips vary from one to 10 min.

Motive Power

Methods of protecting locomotive and motor coach equipments vary little, and in general terms comprise fuses for short-circuit protection; and line switches with overload relay, or circuit breakers, for overload protection.

For protection against lightning and voltage surges satisfactory devices for motor coaches are electrolytic units, other forms of condenser, spark gaps, and chokes; while for locomotives two horn gaps in series on the roof, a surge absorber on the roof, or a spark gap with blowout coil inside the body are found suitable.

The report proceeds to review regenerative braking equipment in locomotives, motor coaches, and at substations. Details are given of regeneration practice on the Manchester-Sheffield line of British Railways, the Southern Railway of India, the South African Railways, and London Transport. Substation resistances, inverted operation of rotary converters, and rectifiers connected as inverters are used by the first three administrations to deal with regenerated power. London Transport, however, normally relies on absorption of regenerated power of other trains in the section when braking with its metadyne equipments. If such a load is not available, a high-speed relay on the motor coach switches in a loading resistance on the vehicle.

In his conclusions Mr. Pick stresses the fact that so-called overload protective devices are really only suitable for protection against faults, and shows how lower currents than those at which feeder circuit breakers are set to trip may, if sustained for some time, represent a considerable degree of overload and readily damage or destroy the cable.

His comments on regenerative braking emphasise the need for speed in bringing alternative loads, or systems of braking, into action when voltage rises occur. The London Transport arrangements with metadyne stock have not proved completely reliable in this respect, and he considers that only electronic devices are likely to meet the conditions completely, but these probably would be too fragile to withstand operating conditions in trains. While electronic equipment is reported to have given good service in substations on the Manchester-Sheffield line, his view is that much longer experience is necessary before the arrangements can be accepted as completely satisfactory.

Successful Stabilisation of a Retaining Wall

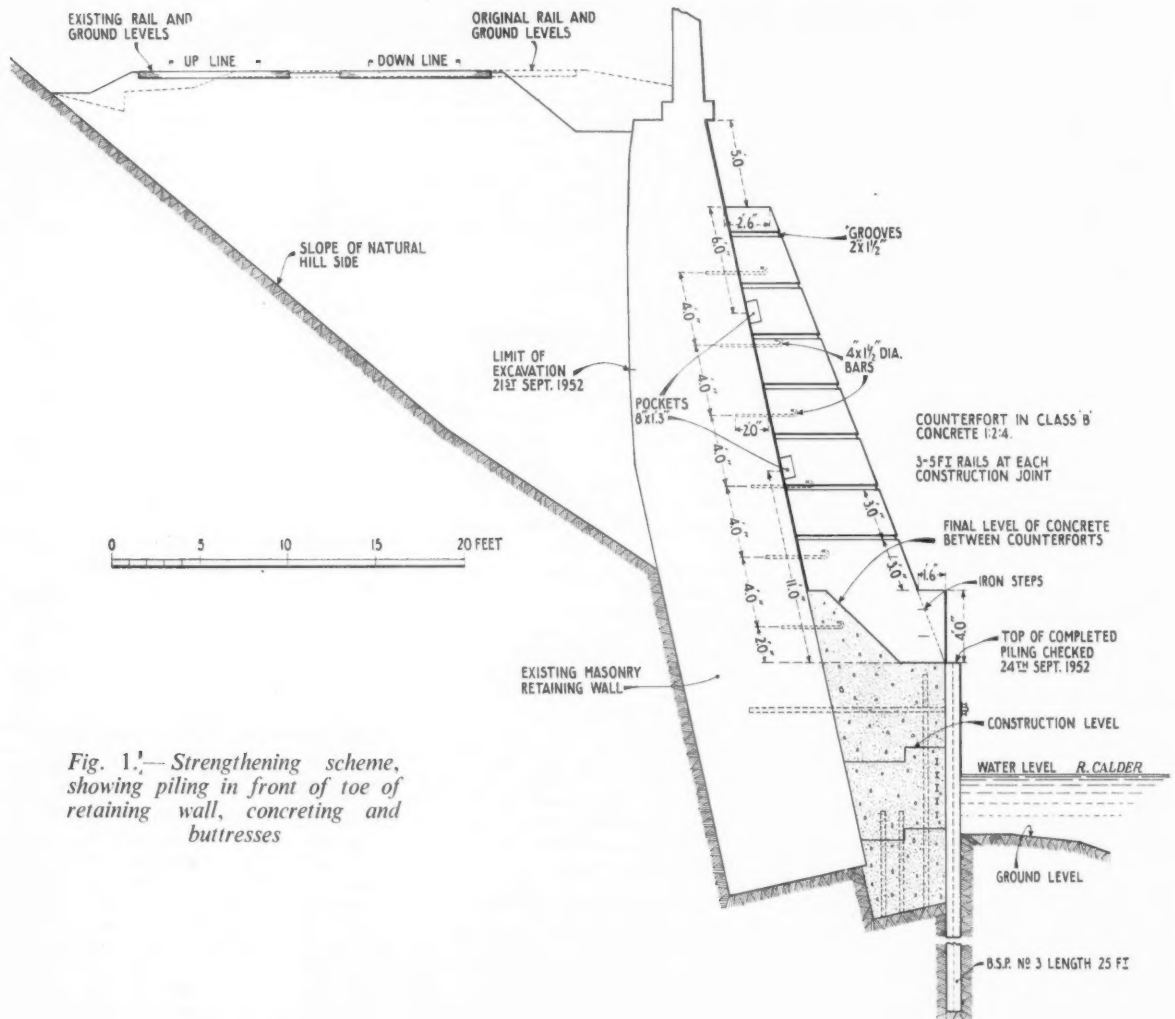


Fig. 1.—Strengthening scheme, showing piling in front of toe of retaining wall, concreting and buttresses

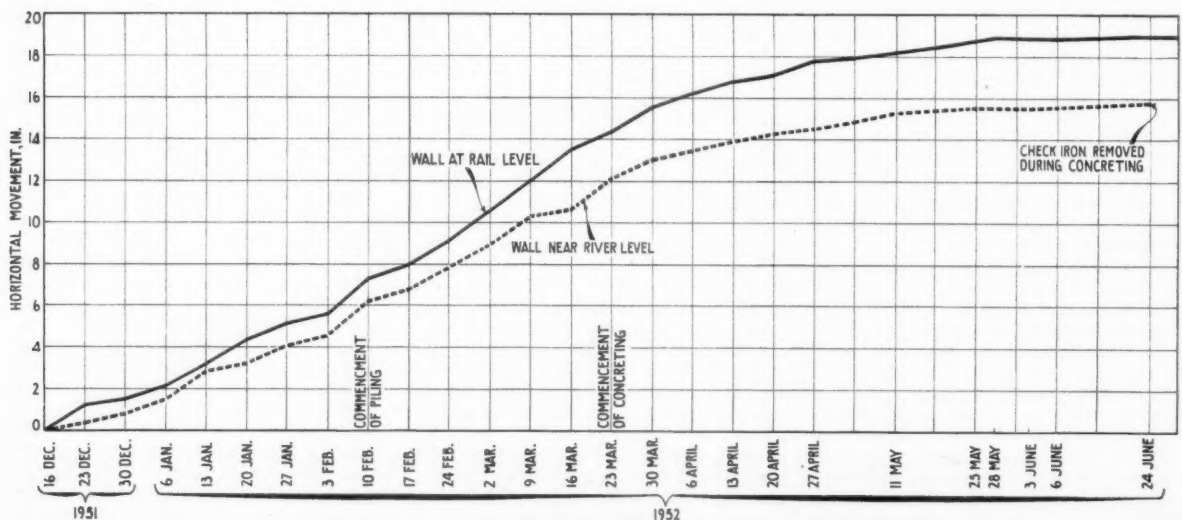


Fig. 2.—Diagram showing progressive reduction in movement of wall

Successful Stabilisation of a Retaining Wall

Steel sheet piling in front of toe of wall: provision of mass concrete: building of concrete buttresses

BECAUSE of unusual difficulty in maintaining the level and line of the rail tracks at a spot between Brighouse and Elland, Yorkshire, where the railway runs 42 ft. above the River Calder, British Railways, North Eastern Region, have stabilised the retaining wall which supports the tracks.

This portion of railway, on the Manchester-Wakefield main line, was opened in 1840, and the double track following the general course of the river is carried on a shelf constructed on the slope of a natural hillside.

During the summer of 1951, the presence of deep-seated instability in the support of the track was discovered. Datum lines and levels were promptly set up from which accurate records of movement of the retaining wall could be obtained. By January, 1952, these records confirmed that outward movement of a section of the wall was taking place, accompanied by a lesser vertical settlement.

As a first step a realignment of the two running lines was carried out whereby they were pulled some 5 ft. inward towards the hillside and away from the retaining wall. Rail straps to safeguard against the effects of local settlement were added to both tracks and a speed restriction of 5 m.p.h. over the length affected was imposed.

The conditions at track level at this stage of the works were as shown in the illustration on page 495. Despite the deformation of the wall which had taken place up to this date, the facework was found to be generally sound.

Strengthening Scheme

Meanwhile, a strengthening scheme was prepared, which provided for continuous steel sheet piling to be driven in front of the toe of the retaining wall throughout the length adjacent to the river, to be followed by the provision of mass concrete between the piling and the wall, taken down to a level some 3 ft. lower than the foundation level of the old wall. Provision was made in the scheme, as shown on Fig. 1, for the subsequent construction of counterforts, if found necessary, still further to safeguard the general stability of this length of retaining wall.

The work was entrusted to Wellerman Bros. Ltd., of Sheffield, and pile-driving began early in February, 1952. Although some difficulty was experienced in obtaining the penetration of the piles as provided for in the scheme, the work was carried out generally in accordance with the plan. Excavation and concreting between the piling and the wall was carried out in sections, involving considerable pumping, and the whole of this stage of the strengthening work was completed in August, 1952. During the progress of this stage of the

work, the records of movements of the wall showed progressive reduction, so much so that from August, 1952, no further movement was recorded (see Fig. 2).

Whilst the ashlar face of this heavy retaining wall appeared in very sound condition, some uncertainty existed as to the condition and quality of the masonry of the wall behind the facing. During the progress of the strengthening work in front of the wall, trial pits were opened out behind the wall and examination made of the masonry. It was clear that considerable voids existed in the main body of the wall.

Pressure Grouting

Experimental work was undertaken in pressure grouting from the outside face of the wall, but it was found that grouting conditions were particularly difficult to ensure satisfactory impregnation

without excessive waste of material. It was decided, therefore, that eight concrete buttresses should be built from the new concrete strengthening work to safeguard the general stability of the wall along the length where the greatest movement had taken place. These buttresses were built without difficulty, being securely bonded into the masonry of the wall as provided for in the scheme shown in Fig. 1, the work being completed in January, 1953.

Penetration of Surface Water

There was little doubt that one of the factors which had given rise to the development of instability in this retaining wall was the considerable penetration of surface water from the adjacent hillside into the wedge of filling supported by the wall. After stability had been confirmed during the progress of the strengthening work to the wall, the



Pumping the excavation between the piling and the wall



tracks were reinstated to their original alignment, and the opportunity then taken to provide improved surface water drainage and conveyance arrangements in the cess at the foot of the hillside.

The whole work was completed in the Spring of 1953, having been carried out under the general direction of Mr. A. Dean, Civil Engineer, North Eastern Region.

Eight concrete buttresses built from the new concrete strengthening work

Electronically Controlled Spot Welder

Sensitivity of transmission mechanism facilitates welding of small electrical components

MANY types of normally difficult welds on small electrical apparatus, such as relay springs, sprung plugs, and connections or other parts for miniature relays, can be performed at high rates on a new 4-kVA. electronically-controlled spot welder which has been introduced by the General Electric Co. Ltd.

Several of these machines have been installed at the New Southgate Works of Standard Telephones & Cables Limited. One is operating in the company's laboratory and used for developing new applications. Others are engaged on full-scale production, often involving the spot welding of non-ferrous metals, and of dissimilar metals representing near-extremes in electrical conductivity.

The welder was originally designed by the G.E.C. Research Laboratories for their own use in welding very thin wires and sheets. Special features are incorporated to ensure accurate repetition work.

Variable Controls

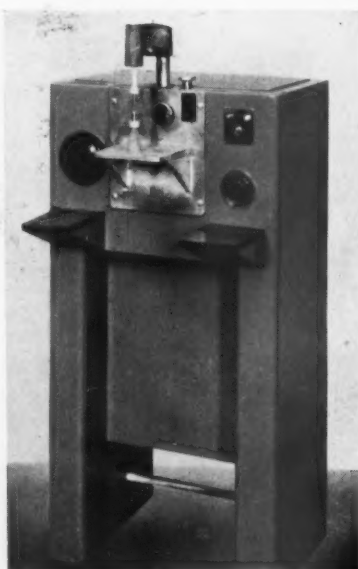
The fully variable controls for current and pressure have graduated scales so that settings may be recorded, and the heavy welding current pulses are not only accurately timed—from one to six cycles duration—by an electronic circuit, but are also synchronised to make sure that a weld always starts at the same part of a cycle. The top and moving electrode is so mounted that there is true straight line motion between electrodes. It is carried in a low-inertia holder to give the quick

follow-up necessitated by the rapid collapse of the metal being welded.

The welder is foot-operated, and the sensitivity of the transmission mechanism is such that very small and delicate parts can be handled and positioned accurately.

The weld switch can be operated automatically only when the preset electrode pressure has been applied. An

indicator gives a visual check on the completion of a weld. The use of a welder head which can be adjusted in height and moved radially, and the provision of an accurately machined and slotted base plate, facilitate the use of jig assemblies.



G.E.C. 4-kVA electronically-controlled spot welder

RADIO-EQUIPPED PARCELS DELIVERY VANS.—British Road Services have carried out an experiment in Leicester with the object of improving the collection of urgent traffic from traders' premises. Three parcels vans, operating in Leicester, have been fitted experimentally by British Road Services with radio sets to enable the carmen to keep in constant touch with the depot traffic office. Messages and instructions coming into this office from traders wanting urgent collections are relayed to the carman whose van is best suited to carry out these instructions, thus speeding up collection and avoiding the necessity of sending a vehicle specially from the depot. In the reverse direction the carman can contact the depot at any time without going to a public telephone. The vans are equipped with 3-W. Reporter two-way mobile sets manufactured by Pye Telecommunications Limited, who also provided the sets for controlling vehicle movements in the Liverpool and Birkenhead dock areas, which has been operating for some time. A 15-W. model PTC703 fixed station is installed on the water tower of one of the highest buildings in Leicester and is connected to a remote control unit in the depot traffic office by G.P.O. landline. The Leicester scheme is stated to have proved so successful that similar experiments will probably be carried out in London, Birmingham, and other large towns.

Successful Stabilisation of a Retaining Wall



Conditions at track level during first stage (realignment)



Tracks reinstated to their original alignment and improved surface water drainage provided

British Railways Class "3" Standard Engine

*Designed for mixed-traffic operating
with maximum route availability*

THE building of the first of the new standard class "3," 2-6-0 tender engines has now been completed at the Swindon Works of the Western Region, British Railways. Of the 20 locomotives to be built, 10 are to be allocated to the North Eastern Region and 10 to the Scottish Region. The engines are numbered 77000 to 77019 and were designed under the direction of Mr. R. A. Riddles, former Member for Mechanical & Electrical Engineering, Railway Executive. The parent office for design was Swindon but certain details were undertaken at Brighton, Derby, and Doncaster.

The tractive effort, 21,490 lb., is the same as that of the class "3" 2-6-2T engines previously built at Swindon; these engines were described and illustrated in our May 23, 1952, issue. Like the tank version, the tender type has

almost universal availability over main and secondary lines throughout Britain, and is designed to replace various tender engines of similar power classification now becoming obsolete.

The leading dimensions of the locomotives are as follow:—

Cylinders (2), dia. and stroke	17½ in. by 26 in.
Wheels, coupled, dia.	5 ft. 3 in.
Wheels, pony truck, dia.	3 ft.
Wheelbase, coupled	15 ft. 4 in.
Wheelbase, total engine	24 ft. 1 in.
Wheelbase, engine and tender	46 ft. 11½ in.
Heating surface:—	
Tubes	932.9 sq. ft.
Firebox	118.4 sq. ft.
Total evaporative	1,051.3 sq. ft.
Superheater	190 sq. ft.
Grate area	20.35 sq. ft.
Boiler pressure	200 lb. per sq. in.
Tractive effort	21,490 lb.
Adhesion factor	5.05
Weight of engine in working order	57 tons 10 cwt.
Weight of engine and tender in working order	99 tons 13 cwt.

The boiler, which is the same as that used on the tank version, follows closely the design of the former G.W.R. boiler, used in the "5100," "8100" and "5600" classes. The steel and copper flanged plates for the firebox are common to both designs but the barrel is 5½ in. shorter. The boiler consists of two rings, the second of which is tapered, the outside dia. being 4 ft. 5 in. at the front and 5 ft. 0½ in. at the firebox end. Both barrel rings are made from high-tensile steel plate ½ in. thick. The smokebox tubeplate is of the drum-head type ⅝ in. thick, and there are 18 large fire tubes 5½ in. dia. outside 7 s.w.g. thick and 145 small tubes 1⅝ in. dia. outside 12 s.w.g. thick. The length between tubeplates is 10 ft. 10½ in.

The firebox is of the Belpaire type, 7 ft. long at the bottom, with an outside width of 4 ft., giving a grate area of



British Railways class "3" standard engine designed for mixed-traffic operating

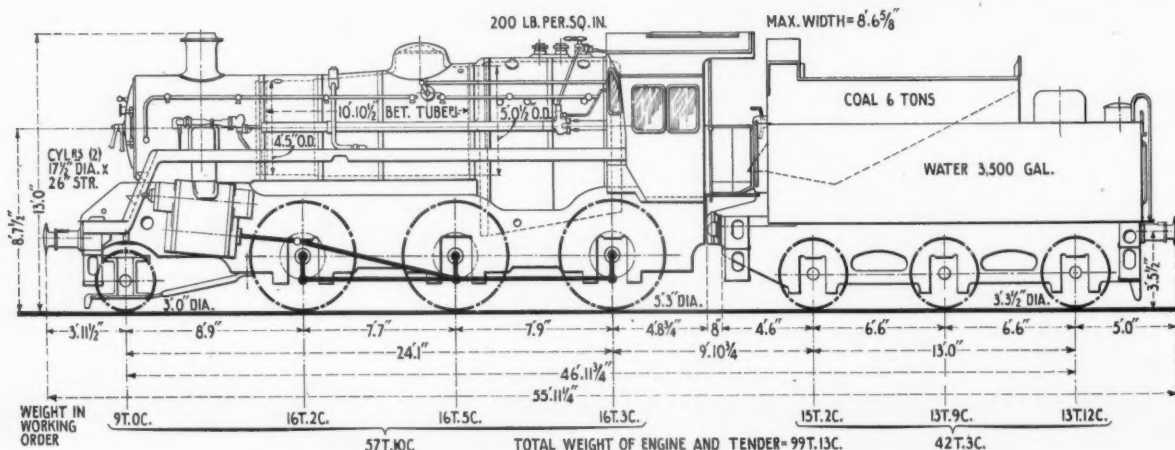


Diagram of principal weights and dimensions of the locomotive

20.35 sq. ft. The steel outer wrapper plate and the copper inner wrapper plate are both $\frac{1}{2}$ in. thick. The throat and back plates are vertical, the former being $\frac{3}{8}$ in. thick and the latter $\frac{1}{2}$ in. thick; the copper tubeplate is $\frac{7}{8}$ in. thick. All the firebox water space stays are made of Monel metal fitted with nuts inside the firebox, while the roof, longitudinal and transverse stays are of steel. The lagging of the boiler and the firebox consists of asbestos mattresses. A rocking grate and self emptying ashpan are fitted, the details wherever possible being the same as those on other standard classes. The boiler mountings, regulator, clack valves, manifold and smokebox details are the same as those on the tank version.

Engine Particulars

The engine frame, as on previous British Railways standard locomotives, is adequately stayed both horizontally and vertically, while the boiler securing arrangement, the spring gear arrange-

ment and the method of staying axlebox guides are similar to those obtaining on other classes.

The wheel arrangement is the same as on the tank version but without the trailing pony truck. Other similar design features include the axleboxes, axlebox guides, lubrication, cylinder cock and sanding arrangements. The cab layout follows closely the arrangement on the other standard tender engines. The cylinders are of cast steel with cast-iron liners and are the same as used for the tank version.

Nominal 10 in. dia. valves are provided, the rear heads being $\frac{1}{2}$ in. smaller in diameter for ease of insertion and removal. They are operated by a Walschaerts valve gear giving full gear travel of $6\frac{3}{4}$ in. corresponding to a cut-off of 75 per cent. The steam lap is $1\frac{1}{2}$ in. and the lead $\frac{1}{4}$ in. The whole gear, with the exception of the reversing shaft and screw, is identical with that of the tank version, the reversing screw in this case

being similar to that of classes "4," "5," "6" and "7" tender engines.

The leading pony truck is of standard design, the side play being controlled by helical springs. The tender is the standard B.R.2A with six tons of coal and 3,500 gallons of water, and although smaller, follows the pattern as used for other British Railways tender engines. Steam brakes are provided on both engine and tender. The following is a list of the principal suppliers of equipment for these locomotives:—

Vacuum brake ejector, driver's brake valve, graduated steam brake valve and associated brake details	Gresham & Craven Limited
Self-aligning ball bearing for valve gear return crank	Skefco Ball Bearing Co. Ltd.
Buffers	Geo. Turton, Platt & Co. Ltd.
Asbestos mattresses	J. W. Roberts Limited
Manually operated blow down valve	Everlasting Valve Co. Ltd.
Mechanical lubricators for cylinders and axleboxes	Wakefield & Co. Ltd.
Superheater elements	Superheater Co. Ltd.
Reverser transmission shaft	Hardy, Spicer & Co. Ltd.
Roller-bearing axleboxes on tender	British Timken Limited

New Lansing Diesel Tractors

Embodying a 16-h.p. twin-cylinder, horizontally-opposed Enfield engine

AMONG the mechanical handling equipment recently developed by Lansing Bagnall Limited are two diesel-operated industrial tractors embodying a 16-h.p. twin-cylinder, horizontally-opposed, Enfield diesel engine. Two versions are so far available in the TD 200 range one of which is shown in the accompanying illustration. The TD 211 model has a maximum speed of 20 m.p.h. and is primarily intended for operating for long distances, while the TD 220 model is more powerful and is designed to move heavy loads over shorter distances, as at railway stations, goods and storage depots, and so on.

The engine is mounted above the rear axle with the air intake arranged radially around the centrally disposed clutch housing. After use, the air is discharged through louvres at the back of the tractor. The fitting of the engine at the rear gives added weight over the driving axle, without the necessity for having ballast weights which would result in an increase in the overall weight of the tractor.

Transmission

The drive is taken from the engine, through a directly coupled gearbox, by means of an intermediate reduction transfer-box to the differential on the rear axle. This transfer-box not only serves to turn the drive through an angle of 180 deg. and return it to the differential which is directly under the engine, but with the rear axle, it also provides a simple means of obtaining a variation of the overall ratio between engine and road speed.

The tractive-effort characteristics will



One of the first of the new Lansing Bagnall TD 200 range of tractors

vary approximately inversely with the driving speed from a draw bar pull of 2,000 lb. and a load capacity of 20 tons on level ground for the TD 220, to 1,100 lb. and 12 tons for the TD211. The turning radius is only $58\frac{1}{2}$ in.

During a recent test at a railway terminus one gallon of fuel oil was sufficient for a working time of about 10 hr. With a fuel tank capacity of three gal. this gives a possible running time of over 24 hr. between refills.

A feature of the design is the visi-

bility afforded to the driver. Both models are available with either left or right-hand steering. The driving controls are of the normal automobile type with a 3-speed and reverse gearbox. The tractor has four-wheel hydraulic, foot-operated brakes and a mechanical hand brake for parking. It is sprung front and rear and is fitted with $18 \times 4\frac{1}{2}$ in. pneumatic tyres.

Electric starting is fitted but a starting handle is also provided and is stowed neatly under the driver's seat.

New Station at Twickenham



Interior of general waiting room in new station at Twickenham, Southern Region (see our issue of April 2)



View at platform level, showing entrance to general waiting room, lighting fittings, and station name signs

RAILWAY NEWS SECTION

PERSONAL

Sir Oliver Goonetilleke, formerly Assistant Auditor of Ceylon Railways, has been appointed Governor-General of Ceylon.

Mr. Ralph H. Botha, Administrative Secretary to the South African Minister of Transport, has been appointed Chief Superintendent (Parliamentary), General Manager's Office, Johannesburg, South African Railways.

Mr. D. M. Robbertze, Assistant General Manager (Commercial), South African Railways, who, as recorded in our April 16 issue, has been appointed Deputy General Manager, joined the railway service in 1913

South African Publicity Association of whose Publicity Advisory Committee he is a member. Besides this, Mr. Robbertze has been closely connected on the commercial side with the direction of South African Airways for a number of years and has represented Airways at some important Conferences in South Africa and overseas.

Mr. W. Cyril Williams, F.R.G.S., A.M.Inst.C.E., M.I.Mech.E., M.I.Loco.E., M.Inst.T., and Past-President of the Institution of Locomotive Engineers, who is retiring today from the executive position of Sales Director with the firm of Beyer Peacock & Co. Ltd. while remaining a Director of the company, commenced his railway work in 1906. In this year he

returned to London and acted for a short time as Acting Advisory Engineer to the South African Railways and eventually returned to duty in South Africa on the staff of the Assistant General Manager in Durban. He joined Beyer Peacock & Co. Ltd. in 1923 as London Representative. He subsequently became London Manager and, in 1945, was elected to the board. He served as President of the Institution of Locomotive Engineers during 1949-50 and has been a corporate member for 34 years.

Mr. H. C. Talbot, Agent, Brussels, British Railways, who, as recorded in our April 9 issue, was appointed General Agent for France on April 1, began his railway career with the South Eastern &



Mr. D. M. Robbertze
Appointed Deputy General Manager,
South African Railways



Mr. W. Cyril Williams
Retiring Sales Director,
Beyer Peacock & Co. Ltd.



Mr. H. C. Talbot
Appointed General Agent for France,
British Railways

and has served in many posts. When the Tourist Branch of the Publicity & Travel Department was established in 1927, he was one of the original staff and was appointed Tourist Representative in London in 1929. After five years in London, he was attached for a time to the office of the Minister of Railways in Pretoria, subsequently transferring once again to the Publicity & Travel Department, of which he became Manager in September, 1937. He became Chief Rates Officer at Railway Headquarters in 1942 succeeding the late Mr. J. J. M. Hendry, and this started his intimate association with the commercial and industrial side of railway activities. He became Chief Manager (Industrial & Commercial), in 1945, and was appointed Assistant General Manager (Commercial) when the managerial set-up of the railways was reorganised in 1950. Mr. Robbertze, who is well known in mining, commercial, industrial and agricultural circles throughout the Union, has been a member of many Committees and has represented the South African Railways on a number of Conferences both in the Union and overseas. He was Chairman for five years of the Railway Conciliation Board, has been a member of the Board of the Tourist Corporation since the inception of this body, and, since 1936, has been associated with the

began an apprenticeship to the Natal Government Railways where his training, apart from the general workshop course, included running shed, signal department, footplate, and drawing office experience. He attended the Durban Technical Institute, obtained the Abe Bailey Scholarship in 1909, the James Brown Exhibition in 1910, and the Institute Scholarship in 1911. For a short period he was a lecturer at the Institute. In 1913 Mr. Williams was appointed a junior engineer to the Chief Superintendent of Motive Power at Johannesburg. During the 1914-18 war he was commissioned in the South African Engineer Corps and served throughout the campaign in German South West Africa with the rank of Captain in the Railway Regiment. During this time he was Locomotive Foreman at Usakos and later held the rank of Assistant Superintendent (Mechanical) at Keetmanshoop. Following the campaign in South West Africa he was posted to France in the Royal Engineers, being promoted in the field to Locomotive Superintendent, Second Army Light Railways. In 1919, Mr. Williams went to the United States and Canada on behalf of the South African Railways, where he was responsible for the inspection of locomotives, wagons, and other railway equipment. The following year he

Chatham Railway in 1919 as a probationer. After two years training in the operating and commercial departments, he was transferred to the Special Traffic Section. On the formation of the Southern Railway, Mr. Talbot was appointed to the special traffic and train running sections of the London East Divisional Office until May, 1929, when he was transferred to the Continental department at Victoria, remaining there until November, 1933. In January, 1934, he was appointed to the newly-formed Associated British & Irish Railways in New York, where he remained until April, 1938, when he then became General Agent for the Southern Railway in Brussels. At the outbreak of the 1939-45 war, Mr. Talbot joined the Army, serving in the Royal Engineers, Movement Control. He served in the Middle East and Italy, returning to Brussels in February, 1946, and remained there until he took up his present appointment.

We regret to record the death on Friday, April 23, of Mr. W. P. Sneddon, Chief Technical Engineer of the Rolling Mill Division of British Timken Limited.

Mr. Harvey C. Marmaduke, Representative of the Executive Department of the Illinois Central Railroad, retires today.



Mr. G. P. G. Mackay

Appointed Chief Assistant,
East African Railways & Harbours



Mr. C. W. Leverett

Appointed Regional Representative,
East African Railways & Harbours



Mr. A. M. Y. Robb

Appointed District Operating Superintendent,
Manchester (Western), L.M. Region

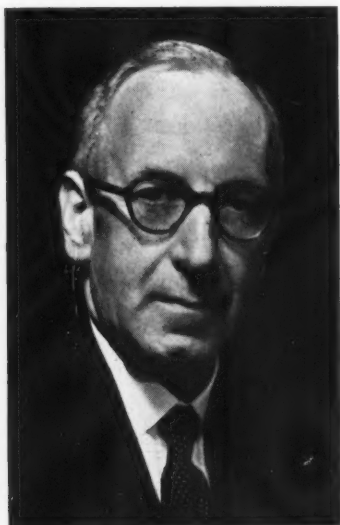
Mr. G. P. G. Mackay, M.A., Principal Assistant, East African Railways & Harbours, who, as recorded in our April 9 issue, has been appointed Chief Assistant, joined the Kenya Uganda Railways as an Assistant Traffic Superintendent in 1941. This followed two years of special training with the London & North Eastern Railway. Early in 1942, after experience in various districts, he was transferred to Headquarters, Nairobi, to be Personal Assistant to the then Superintendent of the Line. In 1948 Mr. Mackay was transferred to the General Manager's Office as Personal Assistant to the General Manager with the title of Administrative Assistant. In January, 1950, he was appointed Principal Assistant to the General Manager.

Mr. C. W. Leverett, M.B.E., A.M.Inst.T., Regional Officer, East African Railways & Harbours, who, as recorded in our April 9

issue, has been appointed Regional Representative, Dar-es-Salaam, began his railway career with the Midland & Great Northern Joint Committee in 1924. After experience at several stations he joined the Chief Accountant's Department of the Tanganyika Government Railways in 1931, transferring to the Transportation Department in 1934 as Stationmaster & Port Officer, Kigoma, on Lake Tanganyika. After service in various parts of Tanganyika, Mr. Leverett joined the Royal Engineers in 1939 and saw service in East Africa, Madagascar and the Middle East. He was awarded the M.B.E. (Military) and was mentioned in Despatches, attaining the rank of Lieutenant-Colonel in the appointment of A.Q.M.G.(M.), East Africa Command. He returned to Tanganyika as Assistant Traffic Superintendent in 1945 and accepted a transfer to the Palestine Railways in the following year as District

Traffic Superintendent at Haifa. On the termination of the Palestine Mandate, Mr. Leverett was transferred to the Kenya & Uganda Railways where he took up the position of District Traffic Superintendent, Mombasa. He continued to be engaged in this work until January 1, 1952, when he received the appointment of Traffic Superintendent & Regional Officer for Tanganyika, East African Railways & Harbours, at Dar-es-Salaam.

Mr. A. M. Y. Robb, Assistant District Operating Superintendent, Rotherham, London Midland Region, British Railways, who, as recorded in our April 9 issue, has been appointed District Operating Superintendent, Manchester (Western), joined the railway service in the Goods Department at Aberdeen in 1926 and later became a Traffic Apprentice. Mr. Robb was Stationmaster at Laisterdyke and Yard Master at



Mr. H. H. Starr

Appointed Assistant Commercial Superintendent,
Western Region



Mr. F. R. L. Barnwell

Appointed District Engineer, Newport,
Western Region, British Railways



The late Dr. Hermann Lemp

Pioneer in electric and diesel-electric traction
systems

Frodingham before being appointed Assistant to the District Superintendent at Glasgow in 1943. Three years later he went to Aberdeen as Assistant District Traffic Superintendent, and, in 1950, he became Assistant District Operating Superintendent, Rotherham, the post he now leaves for his new appointment.

Mr. H. H. Starr, M.Inst.T., Assistant to the Commercial Superintendent (Terminals & Cartage), Western Region, British Railways, who has been appointed Assistant Commercial Superintendent, Western Region, entered the service of the Great Western Railway in 1908 at Gloucester Goods Station. Two years later, he was transferred to Cheltenham, where he later attained the position of Chief Clerk. In 1930, after a period of four years as Townsman (Outdoor Representative) at Gloucester, Mr. Starr was appointed Chief Clerk in the Goods Department at Oxford, which post he vacated in 1933 on removal to Birmingham as Shed Superintendent. He was appointed Chief Clerk to the Goods Superintendent at Birmingham in 1937, and, subsequently, Chief Clerk to the District Goods Manager. In 1940, he was transferred to Paddington as Assistant Goods Superintendent, returning to Birmingham the following year as Assistant District Goods Manager. After twelve months as Goods Agent at Cardiff, Mr. Starr was appointed, in 1945, to be Road Transport Controller responsible to the Chief Goods Manager and Superintendent of the Line. Appointed London District Goods Manager, Western Region, in 1945, the following year he became General Assistant to the Commercial Superintendent, later designated Assistant to the Commercial Superintendent (Terminals & Cartage), the position he now vacates for his new appointment. For the past five years he has served as a member of the Traffic Co-ordination Committee, being previously associated with the former Road/Rail Traffic Joint Committee and the Central Licensing Sub-Committee of the Road/Rail Central Conference. Since 1949 he has also represented the Western Region on the Terminals & Road Transport Committees.

Mr. F. R. L. Barnwell, O.B.E., A.M.I.C.E., District Engineer, Shrewsbury, Western Region, British Railways, who, as recorded in our April 9 issue, has been appointed District Engineer, Newport, was educated at Repton. He entered the service of the London & North Eastern Railway in 1926. From 1929 to 1939 he served mainly in the New Works and Steel Works departments, and was Resident Engineer at many new works in connection with electrification of the Liverpool Street and Shenfield line. During the war he served in France and North Africa, later commanding No. 1 Railway Construction & Maintenance Group in Italy. He was awarded the O.B.E., holds the American Bronze Star Medal, and was mentioned in Despatches. He now holds the rank of Lieutenant-colonel in the Army Emergency Reserve. In 1946 Mr. Barnwell returned to Sheffield as Assistant District Engineer, London & North Eastern Railway, and, in 1949, transferred to Stratford in a similar capacity. Two years later he moved to Inverness, Scottish Region, as District Engineer, and, in 1952, transferred to Shrewsbury, Western Region, as District Engineer, which post he now vacates upon his new appointment.

We regret to record the death at Ridge-wood, N.J., on March 31, of Dr. Hermann

Lemp, pioneer in electric and diesel-electric traction systems. Dr. Lemp, who was in his 92nd year, was born at Zurich and emigrated to America in 1881. He was associated with Edison in that inventor's first electric locomotive in 1882, and for 35 years from 1887 was with Elihu Thompson and his successor company, the General Electric of America. In 1911, Dr. Lemp was sent to Europe by General Electric to investigate diesel traction and the first Diesel-Sulzer locomotive. On his return to the United States he recommended diesel-electric traction, and, in 1914, he patented a system of control from which, and from a later patent of 1924, nearly all present-day diesel-electric locomotive control systems stem. Dr. Lemp was also prominently associated with the specifications for, and the construction of, the first American diesel-shunting locomotive, the General Electric-Alco-Ingersoll Rand 300 h.p. unit of 1923, and its numerous successors. After his retirement from the General Electric Company in 1925 he acted as traction consultant to Ingersoll Rand.

We regret to record the death, on April 20, of Mr. Cyril Clark, Assistant to the Commercial Superintendent, London Midland Region, British Railways, after 45 years of railway service. The funeral took place at Golders Green Crematorium on Monday, April 26, at 11.15 a.m. In addition to family mourners and members of Mr. Clark's indoor and outdoor staff, the following were present:—

London Midland Region:—Messrs. E. S. Hunt, Assistant Chief Regional Manager (also representing Mr. J. W. Watkins, Chief Regional Manager), H. G. N. Read, Assistant Commercial Superintendent (also representing Mr. E. W. Arkle, Commercial Superintendent), F. E. Bailey, Chief Assistant to Commercial Superintendent (Freight), L. W. Cox, Assistant (Freight Services), Operating Superintendent's Department (also representing Mr. S. G. Hearn, Operating Superintendent), R. Paterson, Irish Traffic Superintendent, V. R. Bowen-Cooke, Assistant Road Motor Engineer.

Western Region:—Mr. H. H. Starr, Assistant Commercial Superintendent, Paddington (also representing Mr. A. C. B. Pickford, Commercial Superintendent).

Mr. J. A. Brooks has been appointed Superintendent, Motor Department, Metropolitan-Vickers Electrical Co. Ltd.

Mr. A. G. Evershed has been appointed a Director of Aldershot and District Traction Co. Ltd. in place of Mr. H. E. Osborn, who has resigned.

Mr. G. W. Robson, Assistant Motive Power Superintendent, Wolverhampton, Western Region, British Railways, has been appointed District Motive Power Superintendent, Worcester.

Mr. D. D. Walker, Managing Director & Secretary of Evershed & Vignoles Limited, has been appointed a Director of the Iron Trades Employers' Insurance Association Limited, and the Iron Trades Mutual Insurance Co. Ltd.

Mr. D. D. Walker, Chairman & Joint Managing Director, Evershed & Vignoles Limited, was re-elected Chairman of the B.E.A.M.A. Council; and Mr. E. H. Ball, Managing Director of British Thomson-Houston Co. Ltd., was re-elected Vice-Chairman.

The British Welding Research Association has appointed Mr. A. G. Thompson to make an investigation into welding productivity.

Mr. Jack Adams has been appointed a special foreign sales representative of R. G. LeTourneau, Inc., for Africa and the Middle East.

The General Electric Co. Ltd. states that Mr. J. F. Prince and Mr. A. E. Taylor have been appointed deputies to Mr. T. G. Travis, Sales Manager at the Witton works. They will deal respectively with export and home sales.

Sir George Bailey, C.B.E., Chairman, Associated Electrical Industries Limited, and Chairman, Metropolitan-Vickers Electrical Co. Ltd., was elected President of the British Electrical & Allied Manufacturers' Association for the ensuing year at the Association's annual general meeting on 22 April, 1954.

The following appointments at Coryton Refinery have been announced by the Vacuum Oil Co. Ltd.:—

Mr. B. R. Fraser, Manager; Mr. J. W. Bartholomew, Assistant Manager (Process); Mr. W. Kohring, Assistant Manager (Engineering); Mr. H. T. Fuller, Superintendent of the Operating Division.

We regret to record the death, on April 23, of Mr. Edmund Graham Clark, C.B.E., M.C., M.Sc., M.I.C.E., Secretary of the Institution of Civil Engineers. Mr. Graham Clark would have retired in August from the Secretaryship of the Institution of Civil Engineers—a post which he has held since December, 1937. Mr. Clark was educated at Felsted School and graduated in the Faculty of Engineering of the University of Durham, after which he served as a pupil and subsequently as an engineering assistant to Mr. J. Mitchell Moncrieff, M.I.C.E., Consulting Engineer, on various works on the River Tyne. He served throughout the 1914-1918 war in the 50th (Northumbrian) Division T.F., and was subsequently appointed Chief Technical Assistant at the Institution of Civil Engineers. In 1933 he became Chief Assistant, and early in 1937 was appointed Acting Secretary, being confirmed in the post of Secretary at the end of that year. During his service as Chief Technical Assistant he acted as secretary to a number of technical committees; in particular, the committee reporting on the Tabulation of the Results of Heat Engine Trials; the committee on Engineering Quantities; and the committee on Floods in Relation to Reservoir Practice; etc. During his Secretaryship of the Institution, Mr. Clark played a leading part in furthering the intimate relationship which now exists between the Institution of Civil Engineers, the Institution of Mechanical Engineers, and the Institution of Electrical Engineers, and subsequently in the work of promoting active co-operation between the principal national engineering societies, not only in the Commonwealth but also in Western Europe and in the United States of America, which has resulted in the creation of the Conference of Engineering Institutions of the British Commonwealth and the Conference of Representatives from the engineering societies of Western Europe and the United States of America to consider matters of common interest between the bodies concerned. He was awarded the C.B.E. in 1948. Cremation was private.

New Lifts at Hampstead, London Transport

As part of a programme for modernising lift equipment at a number of London Transport stations, two high-speed lifts were brought into service on April 12 at Hampstead, London Transport, the deepest tube station, to replace lifts in use since the line was opened in 1907. The "travel" from booking hall to lower level is 181 ft. 4½ in.; the permitted speed of 800 ft. per min. reduces the journey time between landings from 53 to 21 sec.

As at other London Transport stations, the new lifts are arranged for control either automatically or by the staff. Automatic control equipment enables the lifts to be set to operate continuously without attention. Intervals can be varied to suit traffic demands by adjustment of the time spent at landings. Manual control by the staff is effected by means of push-buttons in boxes (normally kept locked) on both landings and inside the cars. Control positions are also provided in the machine room and on top of each car, for the use of maintenance staff.

Illuminated signs show the position of each lift in the shaft and also indicate the next lift to leave. When switched to automatic control, signs are illuminated six seconds beforehand to warn passengers when doors are about to close; this warning is supplemented by loudspeaker three seconds before they close. The usual safety interlocks prevent a lift from being moved until both car and landing doors are closed. Access to the top of each car by maintenance staff is by a screened walkway above the upper landing doors. The screen contains doors which, interlocked with the control system, cannot be opened unless a lift is in the required position; similarly, a lift cannot be moved from that position while the screen doors are unlocked. A push-button in the control box on top of the car cuts out all other control points when this is in use by the maintenance staff.

To provide the additional overrun required because of the greater speed of the lifts, the floor of the machine room over the shaft had to be raised by 7 ft.

9 in. and the bottom of the shaft lowered by 2 ft. 6 in. Each car is designed to carry 30 passengers, but will take up to 40 under heavy traffic conditions. The capacity of the new cars is therefore slightly less than that of the older type but, in view of the higher speed, they will complete more trips in a given time and the capacity in passengers per hour will be little different.

Locomotive Named "The Gloucestershire Regiment"

At the suggestion of the Gloucestershire Railway Society, an express locomotive of British Railways, Western Region, on April 24, the anniversary of the Imjin River battle, was named *The Gloucestershire Regiment* as a compliment to that regiment and in recognition of its prowess on the field of battle.

The unveiling ceremony was performed at Gloucester Central Station by the Colonel of the Regiment, Major-General C. E. A. Firth, in the presence of Colonel J. P. Carne, V.C., and other officers of the regiment; county and civic dignitaries; Sir Brian Robertson, Chairman of the British Transport Commission; Mr. K. W. C. Grand and Mr. J. W. Watkins, Chief Regional Managers of the Western and London Midland Regions, and other railway officers.

A detachment of one officer and 30 men from the Regimental Depot was on parade and a trumpeter sounded the regimental call as the nameplate was unveiled.

Representatives of the uniformed staff from both the Western and London Midland Regions, who had served with the regiment, also attended.

The engine, No. 5017, which carries the nameplate *The Gloucestershire Regiment* is of the 4-6-0 "Castle" class used on express passenger trains throughout the Western Region; it has 6 ft. 8½ in. driving wheels, a tractive effort of 31,600 lb., and weighs 126 tons.

Both driver and fireman have served with the regiment: Driver R. J. Cook during the 1914-18 war, and Fireman

R. C. Taylor in Korea, where he was captured with Colonel Carne at the Imjin River battle.

Those present at the ceremony included:

Major General C. E. A. Firth, Colonel of the Regiment; Sir Brian Robertson, Chairman, British Transport Commission; Lt. General Sir Edward Wetherall, ex-Colonel of the Regiment; Mr. K. W. C. Grand, Chief Regional Manager, Western Region; Mr. J. W. Watkins, Chief Regional Manager, London Midland Region; Alderman A. G. Lea, Mayor of Gloucester; Mr. M. Turner-Samuels, Q.C., Member of Parliament for Gloucester; Councillor T. L. Thompson, Mayor of Cheltenham; Colonel J. P. Carne, V.C., who commanded the Regiment in Korea; Major General G. J. P. St. Clair, High Sheriff of Gloucestershire; Major C. S. N. Walker, Chairman of the Gloucestershire Railway Society;

Messrs. Gilbert Matthews, Operating Superintendent; R. A. Smeddle, Mechanical & Electrical Engineer; W. N. Pellow, Motive Power Superintendent; C. J. Rider, Public Relations & Publicity Officer; and J. H. Wells, Public Relations Assistant, Western Region;

Messrs. George Dow, Public Relations & Publicity Officer, London Midland Region; R. H. B. Nicholls, District Operating Superintendent, Western Region, Gloucester; W. Lampitt, District Commercial Superintendent, Western Region, Gloucester; W. W. Wood, Chief of Police, B.T.C., South-Western Area; C. Wright, District Engineer, Western Region, Gloucester; and W. Sidwell, Acting District Motive Power Superintendent, Western Region, Worcester.

Institution of Railway Signal Engineers

At a meeting in London on March 17 of the Institution of Railway Signal Engineers, with the President, Mr. T. Austin, in the Chair, a paper was read by Mr. E. Alan Webster on "Route Indicators." The paper dealt with the description of historical types of route indicators and present-day types; application of the multi-lamp type, stencil type and junction direction route indicator; characters and lights; route proving and repeating; individual signal renewals; controls for route indicators; shunting and marshalling yards—use of route indication to shunting staff.

Mr. J. H. Currey asked for further information on a roller blind indication which he had seen at Glasgow Central. He referred to the difficulty of getting suitable blue glass for the theatre type indicator and wondered whether the glass would be replaced by some of the newer plastics; he did not understand London Transport efforts to produce a white figure with a white ground. As to the junction indicator, he thought there seemed to be little to justify the non-pivot type, as the pivot type seemed to give the same indication to the driver.

Mr. W. Owen explained that, on London Transport, what appeared to be a white ground when the signal was not working, was really frosted or opal glass in front, but on the back of the glass was a painted stencil. When illuminated, the result was white on a black ground. Such indicators were used in places where the light was dim—seldom in the open.

Neon Tube

Mr. H. Birchenbough was interested in the reference to a neon tube for a junction indicator and asked to know why fluorescent tubes, which would seem an ideal medium, had not been adopted for use on such indicators.

Mr. J. H. Fraser said that the reason



High-speed lifts installed recently at Hampstead Station, Northern Line, London Transport

why the neon light mentioned was discontinued was that it was one of the original type—it was not fluorescent—and gave a bright yellow light which, however, in foggy weather became a decided red, so conflicting with the signal aspects. It was also impossible to control the brightness of the light. He was not arguing in favour of the non-pivot indicator, which was in many ways rather clumsy, but it had one advantage, that it could be set up on a bench to make certain that all the lamps would be in exact alignment and in the same focus, whereas with the pivot type, the lamps had to be focused separately.

Mr. F. W. Young did not think it really necessary to route separately shunting movements crossing main lines, if they were of the same type and length. As to the control of route indicators fitted to semaphore signals, he felt that to indicate the route before the signal arm came off could mislead drivers, particularly at night, and he suggested that the arm should come off first. With colour-light schemes, he did not think the expense warranted of the electrical route indications being proved illuminated before the aspect cleared.

Mr. W. J. Sadler said that the whole story of route indicators sprang from the English practice of insisting on route signalling as distinct from speed signalling, as practiced nearly everywhere else throughout the world. He commented on the historical types of route indicators.

Mr. P. A. Langley did not agree that the provision of electrical detection, where individual signal renewals were concerned, was economical. Where two or three routes were involved, the mechanical connections were retained and the improvement confined to the provision of an electrical indicator to eliminate the mechanical one. The provision of a lamp type indicator was well worth while, as it eliminated moving parts.

The President proposed a very cordial vote of thanks to Mr. Webster for his excellent paper.

Engineering Works on the German Railways

Good progress made last year despite reduced programme

Commenting on engineering works carried out or budgeted by the German Federal Railways in 1953-54 Professor A. Dobmaier, Chief Civil Engineer, stresses that the current programme of works has had to be greatly restricted in view of the current operating deficit. The total amount available for engineering works in 1953 was DM. 800,000,000, nearly three-fifths of which relates to permanent way works. Some DM. 550,000,000 would be required merely to maintain the permanent way at its present standard, without allowing for wartime arrears, but the amount available is only DM. 460,000,000. It has been possible to renew the rails on about 640 miles of track, re-sleeper 1,000 miles of track, and renew 3,300 points. The number of speed restrictions has been reduced from 1,030 to 880. Thus, while there has been a slight improvement on the main lines, it has been necessary to accept a further deterioration of the permanent way on secondary lines.

Bridge Reconstruction

Although a number of temporary bridges have been replaced by permanent bridges, and other bridges have been reconstructed to allow 150 more speed restrictions to be removed, nearly 400 bridges requiring speed restrictions remain. Preparations were made to reconstruct nearly 100 of them. Of reconstructed bridges, those over the Rhine at Mainz-Wiesbaden, Engers-Urmitz and Mannheim-Ludwigshafen and those over the Weser at Nienburg and Hörter deserve special mention. Many have been constructed with the aid of modern techniques such as the welding of steel trusses, the use of composite steel, concrete girders or, for road bridges, prestressed concrete.

New techniques have also been applied to some of the tunnelling works, such as the reconstruction of the Buchberg Tunnel

on the Waldshut-Immendingen line where experiments have been made with a new core ring construction method. Signalling work carried out in 1953 includes the construction of 60 new signalboxes, as at Essen, Kassel, Frankfurt, and Hanover. In the new box at Hanover, modern equipment has permitted the reduction of the floor area from 135 to 22 sq. m. A number of additional level crossings has been equipped with automatic warning devices.

As usual, the reconstruction of station buildings had to be relegated to a lower priority. Nevertheless, it has been possible, partly by means of special credits on the part of the provincial Governments or the local authorities, to tackle 65 reconstruction works costing more than DM. 100,000 each, including parts of Munich and Cologne stations. At many stations, individual platform roofs have been substituted for arched roofs destroyed during the war. At Coblenz, Nuremberg, and Münster, the new platform roofs were built in prestressed concrete, the maintenance cost of which is expected to be lower. Among goods sheds reconstructed are those at Hanover, Wanne-Eickel and Ulm. New workshop or depot buildings were completed at Hamburg-Altona, Frankfurt, Esslingen, Nuremberg, and Neumünster. Work on the reconstruction and modernisation of Gremberg Marshalling Yard, Cologne, has made such progress that the first section of the new yard will be put into use this Spring.

Among other major reconstruction schemes which have been completed or have made substantial progress during 1953, are the works at and near Grossenbrode in conjunction with the new ferry service to and from Denmark, and the construction of the new through station at Heidelberg which is to supersede the old terminus. Preparatory work has been begun for the electrification of the Ruhr and Karlsruhe-Basel lines.

Some DM. 170,000,000 of the total of

Station Reconstruction in the London Midland Region



Rhosneigr Station, on the Bangor-Holyhead line, London Midland Region, as reconstructed, showing (left) new stone buildings to accord with local building characteristics, replacing wooden structures, also vitreous enamel signs on concrete posts, and (right) booking hall and waiting rooms

DM. 800,000,000 represent the wages of permanent way staff. Because of reductions in the establishments of other railway departments, the number of railway staff employed in the permanent way department has been temporarily increased. This will have the effect of reducing the share of outside contractors engaged in permanent way work. The organisation of the engineering departments has been amended with the result that over 150 local offices were closed. To some extent, this measure was made possible by the integration of smaller permanent way districts, facilitated by the increased mechanisation of permanent way work.

Australian Visitors to B.I.C.C. Factories

The link between Australia and British Insulated Callender's Cables Limited was strengthened by the recent visit of Australian officials and their ladies to some of the firm's factories in the North. The Australian visitors were:—

Mr. G. R. B. Patterson, Senior Trade Commissioner for Australia; Mr. J. M. Tully, Agent-General for New South Wales; Sir John Lienhop, Agent-General for Victoria; Mr. D. J. Muir, Agent-General for Queensland; Mr. Howard Greenham, Agent-General & Trade Commissioner for South Australia; and Mr. J. A. Dimmitt, Agent-General for Western Australia.

The party was received by the Deputy-Chairman & Chief Executive of British Insulated Callender's Cables Limited, Mr. W. H. McFadzean, who was accompanied by Mr. R. J. Hall, Director, and Sir Rex Hodges, formerly General Manager & Secretary of the Mersey Docks & Harbour Board, who recently accepted an invitation to join the board of B.I.C.C.

B.I.C.C. Connection with Australia

The link with Australia extends over 50 years. In 1899, the predecessors of the present B.I.C.C. Company laid cables across Sydney Harbour. Before the first world war the company played an important part in the electrification of the Melbourne suburban lines of the Victorian Railways. More recently it installed in New South Wales what is believed to be the largest underground cable operating in the Southern Hemisphere, and today it is actively engaged in the extensive New South Wales Government Railways electrification scheme.

B.I.C.C. now has important interests, technical and financial, in several manufacturing units in Australia with a wide range of products. These are supplemented by the supply from Britain of the highly technical products; and all the sales and work on the construction side are coordinated through B.I.C.C. (Australia) Pty. Ltd., which is an Australian company with Australian directors.

MULLARD PUBLICITY DEPARTMENT ADDRESS.—The Publicity & Press Departments of Mullard Limited now occupy new offices at 1, Gerrard Place, Shaftesbury Avenue, London, W.C.2. The telephone numbers are Gerrard 9941 to 9945. All correspondence should continue to be addressed to Century House, Shaftesbury Avenue, W.C.2.

Questions in Parliament

Passenger Transport Facilities in London Area

Mr. Ernest Davies (Enfield E.—Lab.) on April 12 asked if the Minister of Transport & Civil Aviation would request the London & Home Counties Traffic Advisory Committee to inquire into the possibility of extending the staggering of working hours in the London Transport Area and to report on its effect upon transport facilities and costs.

Mr. Hugh Molson (Parliamentary Secretary to the Ministry of Transport): This is one of a number of proposals which the Minister is considering to relieve congestion in London.

Mr. Davies said that travelling conditions in London at peak periods were becoming impossible, and that unless some constructive action of this nature was taken they would experience a continually increasing cost inevitably followed by higher fares.

Mr. Molson said it was because of the increasing congestion that the Minister had various proposals under consideration at present.

Nyasaland Railways

Mr. James Johnson (Rugby—Lab.) on April 15 asked the Secretary of State for the Colonies to indicate when he intended to take over the ownership of the Nyasaland Railways.

Mr. Oliver Lyttelton, in a written reply, stated:—If at any time any such proposal were under consideration I doubt whether the public interest would be served by indicating the fact in advance. In any case this is now largely a matter for the Federal Government by virtue of Item 20 of the Federal Legislative List.

Contracts & Tenders

The British Transport Commission has placed the following orders for 16-ton standard mineral wagons:—

Birmingham Railway Carriage & Wagon Co. Ltd.	2,500
Cravens Railway Carriage & Wagon Co. Ltd.	1,000
Fairfield Shipbuilding & Engineering Co. Ltd.	1,400
P. & W. MacLellan Limited	1,250
Metropolitan-Cammell Carriage & Wagon Co. Ltd.	2,750
Tees-Side Bridge & Engineering Co. Ltd.	500
G. R. Turner Limited	250
Central Wagon Co. Ltd.	910

British Railways, Eastern Region, have placed the undermentioned contracts:—

George Simpson (London) Limited, London, S.W.1: repairs to roofs of erecting, boiler and turning shops and ancillary buildings at New England Motive Power Depot.

Metropolitan-Vickers Electrical Co. Ltd., Manchester, 17: supply of five electric train heating boilers for installation in five Bo-Bo locomotives for Manchester-Sheffield-Wath electrification.

British Railways, London Midland Region, have placed the following contracts:

Whitley Moran & Co. Ltd., Liverpool: repairs to bridges Nos. 10 and 23 at Ashton-under-Lyne and Audenshaw.

J. B. Johnson & Co. Ltd., Liverpool 7: accommodation for staff at Walton Sidings.

Redpath Brown & Co. Ltd., Manchester: supply and delivery of steelwork for the engine

shed roof renewal at Workington Motive Power Depot.

Redpath Brown & Co. Ltd., London, W.C.2: supply, delivery and erection of steelwork for alterations to the supports of staff dining room and Hotels Department buildings at Euston.

The India Supply Mission is inviting tenders for steel sleepers. Full details are given under Official Notices on page 507.

Tenders are invited by the High Commissioner for India for carriage wheels and axles. Full details appear under Official Notices on page 507.

The Special Register Information Service, Board of Trade, Export Services Branch, states that the British Consulate-General at Lourenço Marques has reported that the Ports, Railways & Transport Department for the Beira Railways is calling for tenders for sleepers, rails, screws, points, etc. Tenderers must make the following provisional deposits: for metal rails Esc. 100,000, metal sleepers Esc. 120,000, screws, unions, etc., Esc. 30,000, points Esc. 30,000. The closing date for the receipt of tenders is June 30.

A copy of the tender documents (in Portuguese), including specifications and conditions of contract, may be borrowed by United Kingdom firms in order of application to the Branch (Lac House, Theobalds Road, London, W.C.1).

United Kingdom firms can submit tenders only through firms established in Mozambique whose names are registered with the Stores Department of the Treasury (Almoxarifado de Fazenda), Lourenço Marques.

The Director General of Supplies & Disposals, New Delhi, is inviting tenders for:—

- (a) axleboxes for metre-gauge locomotives;
- (b) wheel centres (three items, of 24, 48 and 24);
- (c) 900 nipples for hard grease guns;
- (d) assorted copper joint rings.

The following references should be quoted:—

- (a) SRI/16046—E/IV
- (b) SRIA/16239—E/I
- (c) SRI/16186—E/IV
- (d) SRI/1754—D/II

Tenders will be received by the Director General of Industries & Supplies, Shah-jahan Road (Section SRI), New Delhi, up to 10 a.m. on (a) May 3; (b) May 5; (c) May 5; (d) May 11.

Forms of tender are available only for purchase in India from the Deputy Director General (Supplies), Directorate General of Supplies & Disposals, New Delhi; Director of Supplies & Disposals, Bombay or Calcutta, or Deputy Director of Supplies & Disposals, Madras.

If the date for the receipt of tenders does not allow sufficient time for tenderers to obtain tender forms from India, they may submit their quotation to India in their own letter form or by telegram so long as all essential particulars are given and provided they simultaneously apply for the tender forms and return them duly completed as quickly as possible on the basis of advance quotations already submitted. A copy of the tender form can be examined at the India Store Department, 32-44, Edgware Road, London, W.2, on application to the "CDN" Branch. The drawings can be seen at the offices of Hodges Bennett & Company, 59-60, Petty France, London, S.W.1, from whom copies may be obtained at a fixed price per sheet.

The Director-General of Supplies & Disposals, New Delhi, is inviting tenders for assorted brake components. Tenders are to be submitted to the Director-General of Industries & Supplies, Shahjahan Road, New Delhi (Section SRI), quoting reference SRI/18910-D/II and will be received up to 10 a.m. on May 18.

Forms of tender are only available for purchase in India from the Deputy Director-General (Supplies), Directorate General of Supplies & Disposals, New Delhi; Director of Supplies & Disposals, Bombay or Calcutta; Deputy Director of Supplies & Disposals, Madras.

If the date for the receipt of tenders does not allow sufficient time for tenderers to obtain tender forms from India, they may submit their quotation to India in their own letter form or by telegram so long as all essential particulars are given and provided they simultaneously apply for the tender forms and return them duly completed as quickly as possible on the basis of advance quotations already submitted.

A copy of the tender form can be examined at the India Store Department, 32-44, Edgware Road, London, W.2, on application to the 'CDN' Branch and drawings can be seen at the offices of Hodges, Bennett & Company, 59-60, Petty France, London, S.W.1, from whom copies may be obtained at a fixed price per sheet.

The Special Register Information Service, Export Services Branch, Board of Trade, states that the United Kingdom Commissioner at New Delhi has reported a call by the Directorate-General of Supplies & Disposal, Shahjahan Road, New Delhi, for tenders for superheater elements and details (Tender No. P/SW2/183/22-E/1).

The closing date for the receipt of tenders is May 19. If there is insufficient time in which to obtain the documents from India, tenderers are advised to submit quotations by letter and, at the same time, ask for a set of the tender documents to be sent to them, which documents they should undertake to complete and return as soon as possible on the basis of the quotations made by letter.

A set of the tender documents including conditions of contract and drawings is available for loan to United Kingdom firms in order of application to the Branch (Lacon House, Theobalds Road, London, W.C.1.).

BEYER, PEACOCK & CO. LTD. EXPANSION.

In his annual review Mr. Harold Wilmot, Chairman of Beyer, Peacock & Co. Ltd., referring to the results for the year ended December 31, 1953, of which some details were given in last week's issue, states that present locomotive orders will provide continuity of production at present load for over two years. The associated company, Metropolitan-Vickers-Beyer Peacock, has ample orders to justify a continuing build-up of production facilities. This company retained its profits in 1953, and Mr. Wilmot anticipates that a further and larger profit will be made in 1954. A professional valuation of all the land, buildings, plant and machinery belonging to the group revealed a figure of £2,301,397 at December 31, 1953. These assets, exclusive of loose tools, etc., stand at £1,471,015 gross, less depreciation reserves of £563,797. The group balance-sheet shows a liquid balance of £2,108,476, against £1,191,676 at the end of the previous year. The board now considers it appropriate to increase the authorised capital to £3,000,000 by the creation of £1,000,000 additional new £1 shares.

Notes and News

Sales Engineer Required.—Applications are invited for the post of sales engineer required for rail traction projects, able to prepare quotations, tenders, and specifications for engines for diesel locomotives of all types up to 2,000 h.p. See Official Notices on page 507.

Soil Mechanics Assistant Required.—A soil mechanics assistant is required by British Railways at Kings Cross. Successful applicant will be required to take charge of the section dealing with soil mechanics and should have a sound knowledge of the theory and practice of soil mechanics with ability to organise investigations, control staff and equipment, and to prepare reports. See Official Notices on page 507.

Railway Benevolent Institution.—At a meeting on April 21 the Board of the Railway Benevolent Institution granted annuities to seven widows, three members, and three children involving an additional liability of £257 15s. per annum. Seventy-six gratuities also were granted amounting to £748 6s. to meet cases of immediate necessity. Grants made from the casualty fund during the month of March amounted to £763 10s.

Pressed Steel Co. Ltd. Higher Profit and Dividend.—The preliminary statement for the year 1953 issued by the Pressed Steel Co. Ltd. shows increased profits, and a total dividend of 17½ per cent on the £3,314,444 capital as increased by a 100 per cent scrip issue, against a total distribution of 20 per cent on the smaller capital. The final dividend recommended is 12½ per cent making equivalent to 35 per cent on the old capital. The 1952 total of 20 per cent included a Coronation bonus of 5 per cent.

Sir John Elliot's Visit to Piccadilly Line.

—Continuing his general tour of the London Transport system, Sir John Elliot, Chairman of the London Transport Executive, visited the eastern section of the Piccadilly Line on April 9. After inspecting Cockfosters Depot, where he watched rou-

tine cleaning and maintenance work in progress, he went by train to Cockfosters Station to meet the staff and look round the station premises; while there he watched the coupling-up of one of the three-car units to a four-car train in readiness for the evening peak service. He then travelled by train to Manor House Station, stopping at various stations on the way to meet the staff and inspect buildings. He also visited Arnos Grove signal cabin. At Manor House, Sir John Elliot spent some time watching the handling of peak-hour traffic. At the end of his tour he sent the following message to Mr. F. G. Maxwell, Operating Manager (Railways) and Mr. G. Yorke, Divisional Superintendent "C" (Railways) (Piccadilly & District Lines): "Congratulations on a well-run railway."

Increased Air Travel.—United Kingdom air corporations and their associates last year carried more than 2,150,000 passengers on their scheduled services—an increase of 25 per cent on the total for 1952. Announcing these figures, the Ministry of Transport & Civil Aviation states that these passengers flew 1,428 million passenger miles, an increase of 16 per cent. Freight traffic increased by 10 per cent to more than 33 million ton-miles, and mail traffic increased by 7 per cent to nearly 20,000,000 ton-miles.

Exors. of James Mills Limited at the B.L.F.

—This year this firm will be showing their full range of railway permanent way fastenings and accessories at the British Industries Fair, Castle Bromwich. This will include various assemblies of No. 2 and No. 3 Macbeth Spikes, Mills jaws and keys, spring steel rail keys for bullhead rail, with the Aladdin and Mills Hurcol rail and wheel flange lubricators. The Mills Hurcol is the latest addition to the firm's products. It has been developed from the Hurcol Model "B" lubricator, which had proved so successful. This large-capacity lubricator with its automatic "empty" indicator is capable of greasing high, low, and check rails simultaneously. One feature is the simple method of controlling the grease output. No drilling or other



Sir John Elliot with Mr. V. T. Vincent, Yardmaster, Cockfosters; on the left is Mr. G. Yorke, Divisional Superintendent, and on the right, Mr. A. W. Manser, Chief Mechanical Engineer (Railways), London Transport

preparation of the rail is required and it is readily adaptable to any type or size of rail.

Brooke Tool Manufacturing Co. Ltd.—A final dividend of 12½ per cent, making 20 per cent for the year to September 25 last is declared by Brooke Tool Manufacturing Co. Ltd. The group net profit is £63,785 (£94,407).

Coventry Gauge & Tool Co. Ltd.—The Coventry Gauge & Tool Co. Ltd. has declared a final dividend of 3½ per cent, tax free, making 5 per cent for the year to August 31, 1953, on capital increased by 300 per cent scrip issue. The net profit is £86,748 (£97,223) after taxation. The sum of £146,715 is carried forward.

A.B.C. Coupler & Engineering Co. Ltd. Results.—The directors of the A.B.C. Coupler & Engineering Co. Ltd. are doubling the ordinary dividend to 25 per cent for the year ended September 30 last. Group profits were £51,480 (against £59,323 for 1952-53), after taxation of £58,808 (£49,591 and special expenditure of £6,380). It is proposed to issue one new fully paid ordinary share for each share held.

G.W.R. (London) Dramatic Society.—The Great Western Railway (London) Dramatic Society presented "Black Chiffon," by Lesley Storm, at the Rudolf Steiner Theatre, London, N.W., on April 23 and 24. The part of the mother was played by Phyllis Griffiths, that of her husband by Alec Griffiths. The role of the son was taken by Oscar Whitaker, and that of his fiancée by Dorothy Langford. Arthur Clapp, who also produced the play, filled the role of Dr. Bennett Hawkins, the psychiatrist.

New Parcels Office at Fenchurch Street.—A new parcels office has now been brought into public use at Fenchurch Street Station, British Railways, Eastern Region. Designed on modern lines the new office has direct access to the street and will allow free circulation of barrows passing from the booking hall and street to platform level. A general office, insured parcels lock-up, and staff messroom are included, and two 30-cwt. goods lifts have been installed. The

original parcels office was destroyed by enemy action in 1940, and since then parcels traffic has been dealt with additionally in the left luggage office, which will now revert to its former use.

Expert Tool & Case Hardening Co. Ltd.—The consolidated group net profits for 1953 of the Expert Tool & Case Hardening Co. Ltd. were £127,261 (£166,288). Net profit after taxation was £54,761 (£62,888). The final dividend on ordinary shares is 16½ per cent, making 27½ per cent. The sum of £42,859 is carried forward.

Glenfield & Kennedy Limited Results.—The directors of Glenfield & Kennedy Limited recommend a final ordinary dividend of 12 per cent, compared with 10 per cent for 1952, making 17 per cent for 1953 (15 per cent). Consolidated net profits were £426,768 and were arrived at after charging taxation of £895,565 and supplementary depreciation of £61,824 and after crediting provisions for taxation no longer required of £35,525. The net profit attributable to outside shareholders was £13,914 (£13,198) and amount retained by subsidiaries was £122,588 (£57,059), leaving the net profit of the parent at £290,266 (£221,609). The reserve for increased cost of replacement of fixed assets is allotted £50,000 and the general reserve receives £100,000. Preference and ordinary dividends absorb £139,525 and £88,250 is carried forward.

Runaway Horse Stopped by British Railways Vanboy.—For stopping a runaway horse in a Leicester street, vanboy Ralph Lock, aged 16, of British Railways, London Midland Region, was summoned to Euston on April 22 to receive congratulations and a monetary award for his gallantry from Mr. J. W. Watkins, Chief Regional Manager. On February 23, vanboy Lock was standing at the rear of his van in Churchgate while the driver was calling at nearby premises, when the horse took fright and bolted. He gave chase but could not gain the driver's seat. He jumped on to the van from the rear, clambered over the parcels, tore away the canvas partition, stood on the brake, and pulled hard at the reins. The horse came to a stand in a one-way street which it had entered from the wrong direction. There is no doubt, it is stated, that but

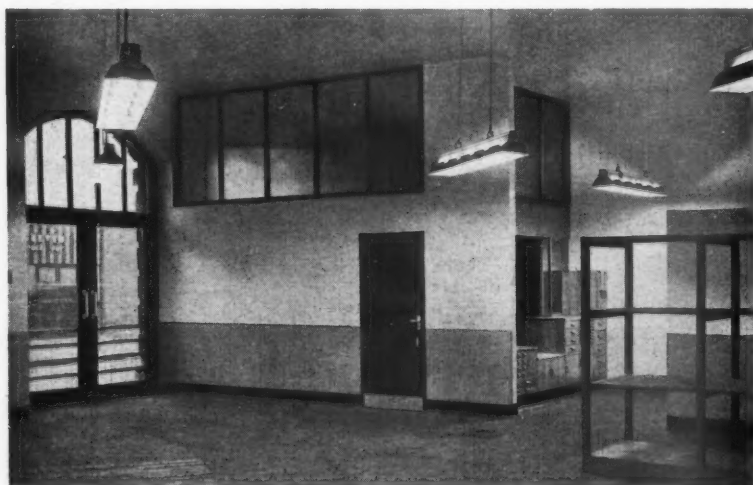
for vanboy Lock's courageous and determined action, a serious accident would have occurred.

G. D. Peters & Co. Ltd.—The consolidated total income of G. D. Peters & Co. Ltd. for 1953 was £200,494 (£203,493). Net profits, after tax, were £75,065 (£86,978). The total dividend is 20 per cent. Net liquid assets amounted to £806,715 (£889,892).

North British Locomotive Co. Ltd. Record Turnover.—The turnover of the North British Locomotive Co. Ltd. in 1953 was a record, and 97 per cent was for export, Mr. J. B. Mavor, Chairman of the company, the results of which for 1953 were given briefly in last week's issue, commenting on this, points out that in present circumstances such a high proportion of export business is unhealthy; in other countries the railways do not build their own locomotives, and it is very hard to compete with Germany and Japan without support from the railways at home, when export orders are short. For the current year there is a reasonable amount of work in hand, but he gives warning of severe world competition in future. Steady progress is reported in conjunction with C. A. Parsons & Co. Ltd. in construction of the coal-burning gas turbine locomotive, though it will be about a year before it is completed.

B.E.A.M.A. Annual Report.—In its report for 1953-54, the British Electrical & Allied Manufacturers' Association warns that the planned increase in the nation's electricity supplies is not enough to meet the growing needs of British industry. To provide for essential re-equipment and supply enough electrical horse-power per worker, at least 2,000 M.W. of new generating plant should be installed each year. In 1953 1,413 M.W. of new plant was put into commission, and present capital investment plans do not allow for yearly increases above 1750 M.W. over the next three years. The electrical industry was again the second biggest exporter among British industries. In 1953 its exports reached nearly £212,000,000 in value, despite fierce competition from foreign firms. The report discusses the effect of export incentives and subsidies operated by Continental competitors, and states that intense foreign competition for export orders must be expected to continue this year.

Vulcan Foundry Limited Results.—The Chairman of Vulcan Foundry Limited, Lord Bridgeman, in his statement accompanying the report and accounts for the year 1953, comments on the shortage of steel plate, which for two years has created a bottleneck. Deliveries are running late which is disquieting in view of the return of competition. In some cases competitors are offering at prices 10 per cent below those quoted by the company, whereas until recently its prices were some 15 per cent below those of German manufacturers. Despite difficulties earnings have staged a remarkable recovery, but Lord Bridgeman gives a warning that valuable orders from traditional British markets are going elsewhere. For the Indian Government Railways, which ordered some 650 locomotives in 1953, not one order came to the United Kingdom. He stresses the danger of wage increases—wages being a high proportion of the cost of a locomotive—unless accompanied by greater productivity. The order book remains healthy, planned production for 1954 including steam locomotives for Boli-



Parcels office at Fenchurch Street, showing parcels receiving counter. The space in the left foreground is for a weighing machine, installed subsequently

OFFICIAL NOTICES

The engagement of persons answering Situations Vacant advertisements must be made through a Local Office of the Ministry of Labour or a Scheduled Employment Agency if the applicant is a man aged 18-64 inclusive or a woman aged 18-59 inclusive unless he or she, or the employment, is exempted from the provisions of the Notification of Vacancies Order, 1952.

THE INDIA SUPPLY MISSION FOR INDIA invites tenders for the supply of:— 30,000 long tons STEEL SLEEPER BAR (PLATE) or ROLLED TROUGH. Forms of Tender may be obtained from the Director General, India Store Department, 32/44, Edgware Road, London, W.2, on or after April 30, 1954, at a fee of 10s. which is not returnable. Cheques to be made payable to "High Commissioner for India." Tenders are to be posted direct to India Supply Mission, 2536, Massachusetts Avenue, N.W. Washington 8, D.C., to reach there by 9.15 a.m. on June 28, 1954. Please quote reference No. S.210/54/C.B./RLY.

BOUND VOLUMES.—We can arrange for readers' copies to be bound in full cloth at a charge of 25s. per volume, post free. Send your copies to the SUBSCRIPTION DEPARTMENT, Tothill Press, Limited, 33, Tothill Street, London, S.W.1.

SOIL MECHANICS ASSISTANT required by British Railways at KINGS CROSS. Successful applicant will be required to take charge of the section dealing with Soil Mechanics and should have a sound knowledge of the theory and practice of Soil Mechanics with ability to organise investigations, control staff and equipment and to prepare reports. Salary range £778/818. Five day week. Canteen facilities and permanency to suitable applicant after qualifying period of service. Free residential travel within certain limits and other reduced rate railway travelling facilities after qualifying period of service. Apply in writing giving full particulars as to age, experience, positions held, qualifications possessed, etc., to Civil Engineer, Eastern Region, British Railways, Kings Cross Station, London, N.1.

SALES ENGINEER required for rail traction projects able prepare quotations, tenders, specifications for engines for diesel locos. of all types up to 2,000 H.P. Applicants with knowledge of traction work preferred, but general experience of diesels would be considered. Apply giving full particulars appointments held, education and salary required, to Personnel Manager, Davey, Paxman & Co. Ltd., Colchester.

THE HIGH COMMISSIONER FOR INDIA invites tenders for the supply of:— 400 Pairs Wheels and Axles for 16 ton axle bogie carriage, Broad Gauge, completely assembled with rolled steel disc wheel centres, tyres 3 ft. 7 in. dia. on tread, glut rings and axle with 10 in. x 5 in. journals. Forms of tender may be obtained from the Director General, India Store Department, 32/44, Edgware Road, London, W.2, on or after April 30, 1954, at a fee of 10s. which is not returnable. Cheques to be made payable to "High Commissioner for India." Tenders are to be delivered by 2 p.m. on Friday June 11, 1954. Please quote reference No. S.6135/53 (HN. 1326/52).

DESIGN ENGINEER required for development of structures for Overhead Electrical Transmission Lines, Railway Electrification, Aerial Ropeways, Floodlight Towers, etc. Successful applicant, who should have had a thorough theoretical training and practical experience in the design and application of these structures, would be expected to control and organise his own Department. Good prospects are offered to a man of initiative and resource. Box 175, *The Railway Gazette*, 33, Tothill Street, London, S.W.1.

via, Chile, India, Nigeria, and Victoria, and electric and diesel for Brazil, India, New Zealand, Spain, and Tasmania. A dividend is proposed of 9 per cent for the year, plus a bonus of 2 per cent, making 11 per cent, as against 7 per cent for 1952.

Road Accidents in March.—Casualties on the roads of Great Britain in March totalled 15,935. This was 95 more than in March of last year, and included 367 killed, an increase of ten. The seriously injured numbered 3,788, a decrease of 192; the slightly injured rose by 277 to 11,780.

Collision near Frankfurt.—A local passenger train collided on April 27 with the "Scandinavia-Italy" express near Frankfurt/Main. Five coaches of the express are reported to have been derailed, whilst the engine overturned; the local passenger train was little damaged. Casualties as we went to press were stated to be four dead and some 60 injured.

A. Reyrolle & Co., Ltd.—The statement of Sir Claude D. Gibb, Chairman of A. Reyrolle & Co., Ltd., which is circulated with the report and accounts for the year ended December 31, 1953, draws attention to the crippling effects of taxation. The additional permanent capital raised by the firm during the year, he says, is less than the amount required to pay the taxation for the year and the capital expenditure on improved facilities for research and production. The profit for the year is £1,144,762, of which £831,688 is being placed to various reserves, as is £20,000 to the employees' benefit reserve. A final ordinary dividend of 7½ per cent is recommended as is a capital distribution of 2½ per cent, not subject to tax, on the ordinary stock from the surplus of £100,476 arising from the sale of holdings in Morphy-Richards, Limited.

British Wagon Co., Ltd.—Group net earnings for the year ended December 31, 1953, of the British Wagon Co., Ltd., were £529,261, compared with £435,655 for the previous year. This was increased by other income to £543,576 (£453,578). Depreciation amounted to £40,942 (£28,671), tax was £214,885 (£175,795) including E.P.L. £25,750 (£5,200). Net profit was £139,168 (£125,330). The distribution, already announced, is 15 per cent (12½ per cent). General reserve receives £225,000 (nil) and £209,270 (£358,627) is carried forward. Current assets amount to £6,532,059 (£5,932,507) and liabilities £2,450,593

(£2,008,219). Revenue reserves stand at £866,192 (£790,549). The directors propose to increase the borrowing powers from £4,000,000, to £6,000,000. The annual meeting is to be held at Rotherham on April 30.

Steels Engineering Products Limited Conference of Distributors.—From May 29 to June 6 nearly 100 overseas distributors and sales agents will attend a conference at Harrogate, organised by Steels Engineering Products Limited. The programme includes films and demonstrations of all Coles equipment, lectures on materials handling, crane selling technique, and future trends in design. Speakers will include senior executives of the company and some users will speak on the application of Coles products to their own industries, including railways, iron and steel making, and constructional engineering. There will be free discussion on all sales and service topics. The aim of the conference is to bring together those responsible for designing and building mechanical handling plant and those responsible for selling these products abroad. Delegates will

spend one day at Sunderland touring the firm's works.

One-Ton Electric Delivery Van.—The cartage fleet at Kings Cross, Eastern Region, has been augmented by five Smith N.C.B. one-ton electric vans, illustrated on this page. These vans are for parcels collection and delivery services. They are equipped with 243 amp-hr. Young batteries. The range, with average half-load in undulating territory, is 37 miles, allowing for 12 stops per mile. The maximum speed is 18 m.p.h., fully laden, on a level road.

F. Perkins Limited.—At the recent annual meeting of F. Perkins Limited, Mr. F. A. Perkins, Chairman, referred in his statement to the record turnover of £13,216,796 last year, an increase of 16 per cent on 1952. Net profit of £778,645 compared with £710,433. The directors recommended a 20 per cent dividend. The Chairman said that a like increase in output was expected this year. Last year an agreement was signed between the company and its distributors in India,



Smith N.C.B. one-ton electric van for Eastern Region parcels C. & D. delivery services

one of its best markets, whereby engines would be assembled in India as the first step to manufacturing engines there. Satisfactory business came from Cuba, Spain and Italy.

Enfield Cables Limited Results.—The profit for 1953 of the group is announced by the directors of Enfield Cables Limited, after all charges except taxation, as £57,494, compared with £404,858 for 1952. Taxation required £40,735 (compared with £242,937) leaving the group net profit at £16,759, a decrease on the year of £145,162. There was a profit on sale of investments of £1,339 (£52,576) making a total group net profit of £18,158 (£214,497). The sum of £25,000 has been transferred from contingencies reserve to provision for contingencies (against £150,000 a year ago). The directors state that in view of these results and the unsatisfactory current trading position, they do not recommend the payment of a dividend for 1953 on the ordinary stock (against 5 per cent for 1952).

British Railways Amateur Boxing Championships.—Railwaymen from all parts of Great Britain will take part in the National Finals of the British Railways Amateur Boxing Championships at the Royal Albert Hall, London, on May 4, starting at 7 p.m. Sir Brian Robertson, Chairman of the British Transport Commission, will preside, and will present the awards to the winners. Among the guests will be Earl Alexander of Tunis, Sir Robert Burrows, a former Chairman of the London Midland & Scottish Railway, and Mr. Jack Tanner, President of the T.U.C. The finals in all ten recognised weights will be preceded by the semi-finals of the bantam, welter, and light middle weights. Nearly 250 railwaymen from the six Regions of British Railways entered for the competition, which started in January. Contestants at the Royal Albert Hall will include the present middle weight and light welter weight champions, the A.B.A. national fly weight champion, and the Police light middle weight champion. The championship was won in 1952 and 1953 by the Eastern Region.

Forthcoming Meetings

- May 1 (Sat.).—Stephenson Locomotive & Manchester Locomotive Societies, at 2.15 p.m. Special train tour from Preston to Longridge, Knott End Railway, Glasson Dock, Sandside, etc.
- May 1 (Sat.).—Permanent Way Institution, East Anglia Section. Visit to Lowestoft Harbour Works and Sleeper Depot.
- May 3 (Mon.) to May 12 (Wed.).—Institute of Transport. Visit to France.
- May 4 (Tue.).—Railway Students' Association. Morning visit to London Transport Loughton Garage.
- May 4 (Tue.) to May 7 (Fri.).—The Society of Engineers (Incorporated). Centenary celebrations.
- May 6 (Thu.).—Electric Railway Society, at the Fred Tallant Hall, 153 Drummond Street, London, N.W.1, at 7.15 p.m. Paper on "Manchester-Sheffield Today," illustrated by Mr. J. M. Clayton.
- May 7 (Fri.) to May 9 (Sun.).—Institute of Traffic Administration. Annual Conference at Prince of Wales Hotel, Southport.

May 7 (Fri.).—The Railway Club, at 57, Fetter Lane, London, E.C.4, at 7 p.m. Paper entitled "By Rail to Lapland," by Mr. R. Burrows.

May 8 (Sat.).—Permanent Way Institution. Visit to Toton Marshalling Yards, London Midland Region.

May 10 (Mon.).—Historical Model Railway Society, at the headquarters of the Stephenson Locomotive Society, 32, Russell Road, London, W.14, at 7 p.m. Talk entitled "Railway photographs from my collection," by Mr. George Dow.

May 11 (Tue.).—Institution of Civil Engineers, at Great George Street, Westminster, S.W.1, at 5.30 p.m. Paper on "Wear of steel rails; a review of the factors involved," by Mr. J. Dearden.

May 11 (Tue.).—Road Haulage Association, at Grosvenor House, Park Lane, W.1, at 12.30 for 1 p.m. Annual luncheon.

Principal guests: Mr. Alan Lennox-Boyd and Lord Brabazon.

May 12 (Wed.).—Newcomen Society, in the Science Museum, Exhibition Road, South Kensington, S.W.7, at 6 p.m. First Dickinson Lecture entitled "The new era in the history of technology," by Dr. Charles Singer.

May 13 (Thu.) to May 14 (Fri.).—Institution of Locomotive Engineers. summer meeting at Crewe, Chester and Shotton.

May 15 (Sat.).—Permanent Way Institution. Visit to Toton Marshalling Yards, London Midland Region.

May 26 (Wed.) to May 29 (Sat.).—British Railways & London Transport Exhibition of latest developments of railway locomotives, rolling stock, and engineering equipment at Willesden Motive Power Depot. Wednesday 3 to 7 p.m. Thursday to Saturday inclusive, 10 a.m. to 7 p.m.

Railway Stock Market

The strength and rising prices which have featured stock markets for weeks received a moderate check, the international situation having made for caution. With buyers less in evidence, values declined both in the gilt-edged and industrial sections. Nevertheless compared with a week ago many shares were again higher on balance because the reaction in prices on Monday and Tuesday was inclined to attract renewed demand. The view persists that sooner or later a cut in the bank rate is likely, and financial results continue to show a general tendency to pay more liberal dividends. The rise in share values this year, however, has been so pronounced that it is not surprising that demand is now becoming much more selective.

Foreign rails again were featured by activity in Manila Rails on confirmation of the sale of the holding of Manila Railroad bonds to the Philippine Government and estimates of the break-up value of the Railway company's debentures and shares. They are all quoted in the market below their estimated break-up values. The "A" debentures have moved up further to 144, but this compares with a break-up of 153, while the "B" debentures, whose break-up is estimated at 141, are 134. The preference shares are 18s. 6d. but should have a pay out of 20s. Allowing for liquidation expenses, it seems that the ordinary shares which are now quoted at 8s. 6d. may be worth up to 13s.

Antofagasta ordinary stock has changed hands around 8½ and the preference stock around 40, while there was some activity in the 5 per cent (Bolivia) debentures up to 70.

Dorad Railway ordinary stock continued to attract attention on estimates of their break-up value in the event of an offer for the railway, though there is no evidence that this much talked of takeover is in early prospect. If it comes along there is no doubt the ordinary stock would be worth much more than its current price of 76. The 6 per cent mortgage debentures remain tightly held and quoted at 90. Costa Rica ordinary stock was 9 and the 6½ per cent second debentures 45½.

Guayaquil & Quito 5 per cent bonds were 50, and Paraguay Central 6 per cent debentures have been dealt in at 20.

Among Indian stocks, Barsi transferred at 126. Elsewhere, Emu Bay 5 per cent and 4½ per cent debentures were 20½ and

62½ respectively, and Midland of Western Australia ordinary stock 22. Nyasaland Railways 3½ per cent debentures were 79½.

Canadian Pacifics eased to \$44. The 4 per cent preference stock and 4 per cent debentures were £65½ and £90½ respectively. White Pass no par value shares eased to \$24½ and the convertible debentures were down to £87.

United of Havana second income stock remained firmly held and quoted at 43½ with the consolidated stock 6½. Mexican Central "A" debentures were 77. San Paulo units changed hands around 5s. 6d.

Nitrate Rails shares were 20s. 3d. and Taltal Railway shares 14s. Brazil Railway Bonds were dealt in around 6½.

Road transport shares remained firmly held with Southdown at 31s., West Riding 35s. and Lancashire Transport 47s. Devon General were 29s. 6d.xd. and Trent Motor Traction 32s. 3d.xd., with Rhondda Transport 27s. 6d. and Ribbles Motor Services 36s. 3d. After rising further, B.E.T. 5s. "A" units eased to 44s. 4½d.

After their recent upward trend engineering and kindred shares reflected the easier turn in markets earlier this week, but declines generally were not more than a few pence. Vickers were 56s. 6d.xd. awaiting the full results and chairman's annual statement for any news as to the decision on reacquiring English Steel. Cammell Laird 5s. shares at 14s. 3d.xd. also lost a part of the rise which followed the higher distribution and share bonus news. Babcock & Wilcox remained steady at 57s. 3d. on hopes of a bigger distribution, and Clarke Chapman strengthened to 76s. 3d. Ruston & Hornsby have been firm at 50s. 3d., also T. W. Ward at 95s., but Guest Keen eased to 59s.

After the rise which followed the good impression created by the important financial results that have come to hand recently, the shares of locomotive builders and engineers reflected a little profit-taking.

Beyer Peacock eased to 36s. 3d. Gloucester Wagon 10s. shares were 17s. 6d., Vulcan Foundry 24s.xd., North British Locomotive 15s. 10½d.xd., and Wagon Repairs 5s. shares 12s. 7½d. Hurst Nelson were 42s. at Glasgow. Elsewhere, Birmingham Carriage changed hands around 26s. 6d. Charles Roberts 5s. shares were 8s. 10½d. and G. D. Peters 5s. shares 23s. 9½d.